OVERCOMING RESISTANCE TO HEALTH PERSUASION: STRATEGIES TO REDUCE SELF-DEFENSE MOTIVES

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ABSTRACT

OVERCOMING RESISTANCE TO HEALTH PERSUASION:

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This dissertation addresses audience members' motivation to protect the self-concept from a potential threat, which is a critical element in deterring health persuasion. Guided by theories and research in social psychology and communication, this dissertation examines the efficacy of three intervention strategies at overcoming resistance based on self-defense motives: (1) self-affirmation, (2) value-expressive message framing, and (3) narrative persuasion. Although these strategies are rooted in different theoretical backgrounds and mechanisms, they have in common as a subtle form of persuasion strategies that indirectly address resistance. This dissertation identifies potential sources of self-threat, treating them as individual difference factors, and investigates their interplay with different combinations of intervention strategies on producing persuasive outcomes.

Studies, divided into three chapters, are designed to specify for whom and through which mechanisms each intervention strategy is likely to persuade. Chapter III investigates the efficacy of value-expressive message framing and self-affirmation at reducing the influence of attitudes serving an ego-defensive function in the context of psychiatric help-seeking. Chapter IV examines the efficacy of health narratives at increasing perceived risk in the context of study

drug use without a prescription. Chapter V examines the relative efficacy of narratives (vs. informational messages) with or without self-affirmation at correcting a mistaken risk perception about heavy episodic drinking. The extent to which individuals respond defensively to health messages varies by their personal values and motivational goals, personal experiences, and the accuracy of their risk perception. The proposed intervention strategies can reduce the influence of these factors, independently or complementally with another, therefore improving health persuasion.

Self-affirmation and value-expressive message framing can enhance persuasion by removing the need for self-defense or redefining a health behavior in a way that enhances audiences' positive self-image. Narratives also have the capacity to reduce defensive resistance among those with negative story-congruent memories and unrealistic optimism through the mechanisms that involve the loss of self-awareness. Theoretically, this dissertation clarifies research on the mechanisms of narrative persuasion and the utility of value-expressive attitude function in health communication. This dissertation also provides practitioners with an expanded kit of persuasion tools for encouraging self-improvements in health.

BIOGRAPHICAL SKETCH

Hye Kyung Kim was born and raised in Seoul, South Korea. After completing her undergraduate education in Advertising and Public Relations at Ewha Womans University, she earned a Master's degree in Public Relations from S.I. Newhouse School of Public Communications at Syracuse University. Before joining Cornell as a doctoral student, she worked as a research executive at TNS Korea, a market research agency. Her overarching research goal is to apply communication and social psychological theories to understand the processing and effects of communicative interactions in health. She is particularly interested in the role of self-defense motives in health-decision making and the processing of personally relevant risk information in mediated contexts. Her research ultimately seeks to develop theory-driven communication strategies that overcome resistance to health persuasion.

DEDICATION

To my parents who have believed in me from day one.

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CHAPTER I: INTRODUCTION

Large-scale health promotion campaigns often disseminate risk messages intended to increase fear and perceived vulnerability to the risk. However, exposure to such information does not directly transfer to precautionary actions because people generally consider it won't happen to them. Public health campaigns are not always effective, especially for high-risk populations, because personally relevant health information can increase one's motivation to preserve a positive self-image and resist or reject the campaign's health-related messages (Liberman & Chaiken, 1992; Kunda, 1987, 1990). While resistance to persuasion can be the result of many different processes, this dissertation focuses on one particular motivator—protecting the self-concept from a potential threat (i.e., self-defense motive)—which is considered a key to motivating resistance to health persuasion. Although resistance and the self-concept are closely intertwined in health persuasion processes, there is a lack of research that addresses specific reasons why audiences would consider health messages as threatening to their self-conception in different contexts, and the influence of that threat on health information processing and acceptance.

Knowles and Linn (2004) pointed out that persuasion research has almost exclusively focused on investigating strategies that enhance the attractiveness of persuasive attempts through reasoning, credible sources, or added incentives (Petty & Cacioppo, 1986). Research is sparse in ways to reduce the motivation to move away from the persuasive goal. In health contexts, where individuals are sensitive to cues that have negative implications for their self-concept, strategies with the potential to decrease audiences' motivation to resist persuasion are likely to be more useful in practice. It is thus an important task for health practitioners and researchers to expand

the kit of persuasion tools by investigating and developing strategies that can minimize the activation of self-defense motives when audiences are presented with health information.

In social psychology, the reduction of self-defense motives has commonly been examined with the Self-Affirmation Theory (Steele, 1988), which claims that affirming important but topic-unrelated domains of self-identity can reduce the threat posed by health information. The central premise of self-affirmation theory has received support in a wide range of health topics that involve self-threat (e.g., Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000). However, self-affirmation is only one of many possible approaches that could be employed with the goal of reducing resistance based on self-defense motives. Specifically, this research project proposes that (1) value-expressive messages (i.e., framing a behavior as a pursuit of an important value) and (2) narrative forms of communication could also accomplish this goal.

These two approaches represent subtle forms of persuasion, indirectly addressing resistance like the self-affirmation method. While self-affirmation is designed to remove the need for self-defense itself, value-expressive message framing and narrative approach take an alternative route to reduce the influence of self-defense motives. Guided by the Functional Theory of Attitude (Herek, 1986), value-expressive framing attempts to sidestep resistance by reframing a health behavior in a positive light for the audiences' self-conception. Narrative approaches, on the other hand, attempt to distract from or minimize resistance by engaging audiences into the narrative world, which can involve the loss of self-awareness (Green & Brock, 2000; Petty, Wells, & Brock, 1976). It remains largely unknown for whom and under which circumstances they are likely to be most useful in health persuasion, however, due to a lack of research examining the efficacy of these approaches at overcoming self-defense motives.

It is an open question, for instance, whether value-expressive message framing would be effective for those who already have value-expressive attitudes toward a health behavior (i.e., the functional matching hypothesis) or for those who had not previously considered their attitude value-expressive (i.e., the manipulation of attitude function). There is also a lack of attitude function research on the selection of values in crafting value-expressive messages, in particular whether it is better to create a new value-attitude link or to strengthen an existing one. Examining specific conditions and the mechanisms of how value-expressive messages help audiences overcome their self-defense motives would enhance our understanding of the utility of the functional approach in health communication.

Although narrative approaches have been recommended as a way to overcome resistance to persuasion, these effects have been primarily explained by the reduction of attention to persuasive intent that underlies health messages, which enable audiences to process information in a less critical manner (e.g., Slater & Rouner, 2002). One uninvestigated area in the literature, however, is the efficacy of narratives in reducing audiences' motivation to self-defend when a health message contains counter-attitudinal elements to their positive self-conception (e.g., reminding them of their negative past behaviors). Researchers have suggested several psychological mechanisms to explain the process of narrative persuasion, including transportation (Green & Brock, 2000), identification (Cohen, 2001), perceived similarity (Moyer-Gusé, 2008), empathy (Campbell & Babrow, 2004), and self-referencing (Dunlop, Wakefield, & Kashima, 2010). These mechanisms each address how audiences relate themselves to a narrative or its character. Yet, it is an open question exactly how audiences engage in these mechanisms because people are also inclined to distance themselves from disturbing stories or its negative characters (e.g., depicted as a high-risk individual). Thus, investigating factors that help

produce personalized responses to health narratives, and the processes of how such an experience enhances persuasion, would be an important contribution to both practical efforts to persuade those who may resist health messages, and to broader theorizing about narrative persuasion.

There are many interesting, but unanswered, questions about the three strategies proposed to overcome resistance based on self-defense motives (self-affirmation, value-expressive framing, and narratives). At the macro level, would using more than one of strategies in concert be more effective than taking a single approach? Which combinations of strategies complement or interfere with each other? Which factors change the relative efficacy of each approach? These questions are important for developing and refining both theory and practice to overcome resistance to health persuasion.

Research Scope and Objectives

To address above described gaps and opportunities in the literature, this dissertation has three primary goals: to (1) identify different sources of self-threat (reasons for self-defense) that vary by health contexts or between individuals and examine their implications for health information processing and persuasion, (2) examine the efficacy of intervention strategies aimed at reducing resistance based on self-defense motives, and (3) investigate specific mechanisms through which self-defense motives could be reduced by the proposed intervention strategies.

To this end, this research project will address three health contexts, one for each chapter, that involve different self-integrity concerns that range from future-oriented identity concerns (the likelihood of stigmatization as a result of seeking mental health treatment; Chapter III) to past identity concerns (message congruent past experience with "study drugs"; Chapter IV). This dissertation will also address biased self-views (unrealistic optimism about binge drinking risk) as a predisposition to defensively respond to health information (Chapter V). The

selection of health contexts was intended to cover different sources of self-threat while considering the study target audiences (i.e., college students) that were available for this dissertation research. Although each study context has its own unique nature and characteristics, contexts that involve similar origins of self-threat are likely to share commonalities in terms of how audiences would respond to intervention messages. Each chapter identifies potential sources of self-threat, treating them as individual difference factors relevant to self-defense motives, and examines their implications on health information processing and persuasion, as well as the utility of these proposed intervention strategies (independently or jointly) at reducing resistance to health persuasion.

Specifically, Chapter III examines the interplay between self-affirmation and value-expressive messages with the goal of reducing ego-defensive attitudes toward psychiatric help-seeking behavior. Chapter IV focuses on the impact of narrative approaches, investigating factors that promote internalized responses to health narratives and the mechanisms through which such experience change perceived risk associated with so-called "study drug" use without a prescription. Chapter V examines the relative efficacy of narratives to informational messages, with or without self-affirmation, at correcting a mistaken risk perception about alcohol-related problems. The next section provides more detailed chapter previews.

A Look Ahead

Chapter II. This chapter, divided into two broad subsections, offers an overview of theory and research that underlie this dissertation. The first section, entitled "Resistance to Persuasion", defines resistance in the context of the dissertation and addresses the role of self-conception in health persuasion. This section also covers different sources of self-threat that may vary by individuals or health contexts, and their implications for health information processing and

persuasion. The second section, "Proposed Strategies to Reduce Self-Defense Motives", introduces the three intervention strategies examined in this dissertation, explaining their key mechanisms and theoretical rationale. This section also offers seven propositions that guide the design of three broadly grouped studies reported in Chapters III, IV and V.

Chapter III. In the context of psychiatric help-seeking, this chapter investigates two avenues to overcome the influence of attitudes serving an ego-defensive function: (1) providing insight into the audience's motivational dynamics by using value-expressive message framing, and (2) removing the threat to the ego using self-affirmation. Study 3.1 first identifies reasons for holding attitudes toward psychiatric help-seeking in relation to the target audiences' value structures and motivational goals. Based on these results, in Study 3.2 develop two message conditions (i.e., health or self-direction value-expressive messages, compared to a control message) and test whether value-expressive messages could be useful for forming positive psychiatric help-seeking attitudes. In Study 3.3, I examine the efficacy of value-expressive-messages and self-affirmation to reduce the influence of two potential sources of self-threat (private and public identity concerns). I propose a conceptual model to explain the origins of ego-defensive attitude and its influence on message processing and belief change about psychiatric help-seeking.

Chapter IV. In the context of study drug use among college students without a prescription, this chapter describes two randomized experiments examining (1) factors that prompt more internal reading of a health narrative, and (2) the conditions and the processes through which these factors lead to changes in audience's own perceived risk. Study 4.1 first examines how audiences connect to a health narrative and its character (self-referencing and identification) as a function of autobiographic similarity with the character and different

perspectives through which a narrative is told (1st vs. 3rd person). Study 4.2 further examines these two factors, adding a processing motive manipulation (experiential vs. analytical) to investigate whether different mental processing involved in narrative reading help explain narrative efficacy at overcoming resistance. Study 4.2 also explores different pathways through which audiences integrate risk information in a narrative with their personal experience, in particular when the story reminds their negative past experience.

Chapter V. In the context of heavy episodic drinking among college students, this chapter examines two intervention approaches designed to improve risk decision-making, particularly among unrealistic optimists: (1) reducing the level of self-defense motives (using self-affirmation) before exposure to risk information that challenges unrealistic optimism, and (2) providing a vicarious experience about negative health consequences through a narrative depicting a person who shares a similar risk profile with the audience. To specify for whom and under what circumstances each approach is most likely to be effective, this study identifies the presence of unrealistic optimism at the individual level, and examines the relative efficacy of proposed intervention strategies at correcting perceived risk. Transportation, self-referencing, and identification are tested as psychological mechanisms through which unrealistic optimists realize their vulnerability to health risks.

Chapter VI. This chapter concludes the dissertation by summarizing key findings of the current research project, addressing their implications for both theory and practice in health communication. The chapter concludes by offering suggestions for future studies on resistance to health persuasion, primarily based on self-defense motives.

CHAPTER II: THEORETICAL ROADMAP

Resistance to Health Persuasion

Resistance as a Motive to Protect the Self-Concept

The term "resistance" has been defined in two ways in psychology and communication research: as a failed persuasion attempt (e.g., lack of attitude or behavioral change) and/or as a motivational state to withstand a persuasive attempt (McGuire, 1964). Persuasion researchers emphasize that resistance is not the same as not being persuaded or the inverse of persuasion (Cohen, 1964; McGuire, 1964). In this dissertation, I define resistance to persuasion as a motivational state to withstand the influence of a persuasive attempt (Jacks & O'Brien, 2004; Knowles & Linn, 2004). Defining resistance as a motive means that the level of resistance could vary by individuals and contexts, which may be malleable when strategically approached. It also becomes important to examine the processes involved in moving toward the persuasive goals as resistance may affect other cognitive or affective reactions beyond persuasion outcomes.

Among many possible reasons for the motivational state to resist, I focus this dissertation on one particular motivator—to protect the self-concept from a potential threat, which is considered a key motivator of resistance to persuasion in health contexts (Jacks & Cameron, 2002). Individuals have a fundamental motivation to protect their own perceived integrity and self-worth to maintain a stable (positive) self-view, personal values, and attitudes because it offers a sense of control and predictability (Pittman & Heller, 1987; Steel, 1988). When important self-conceptions are challenged, individuals feel threatened and motivated to resist persuasion. The concept of reactance, a form of resistance to restore lost freedom (Brehm, 1966), originates from an external threat to one's freedom of choice. Motivation to protect one's

perceived integrity and self-worth (Steel, 1988) is considered a more intrinsic form of resistance that originates from internal sources of threat (i.e., depends on how one perceives oneself to be).

Origins of Self-Threat

The self-system is composed of different domains that are important to individuals' self-conceptions and images (e.g., their social roles and personal goals) (Crocker & Wolfe, 2001). Individuals are vigilant in response to any information, messages, or events that challenge their desired self-conception or image. Whether or not an individual experiences a self-threat depends in part on the extent to which this person considers challenged a self-domain that constitutes his/her personal identity (Boninger, Krosnick, & Berent, 1995). Although what comprises important self-conceptions may vary between individuals, being a "healthy person" is in general an important part of how individuals want to perceive themselves (Sherman & Cohen, 2006). Thus, messages that suggest one's vulnerability to health risks could be threatening to his/her self-conception as a healthy individual.

Previous research has often conceptualized the level of self-threat as personal relevance, driven by past engagement in unhealthy behaviors (Ditto & Lopez, 1992; Kunda, 1987; Liberman & Chaiken, 1992). Health information becomes more self-threatening if an individual had engaged in negative behaviors (e.g., smoking, drinking) because accepting the information carries the self-evaluative burden of acknowledging one's unwise behaviors. However, not all health contexts involve maladaptive behaviors - there are potentially other important self-domains and reasons for self-defense when presented with health information. For instance, in a health context associated with stigmatization (e.g., mental health issues, obesity), health information addressing vulnerability to such an issue could be threatening to an individual's self-conception as a balanced and reasonable person both in their own eyes and in the eyes of others.

Self-Discrepancy Theory (Higgins, 1987) offers a theoretical framework to understand the conditions under which individuals experience emotional vulnerabilities or discomfort with themselves. There are three basic domains of the self: (a) the actual self (i.e., attributes that your self believes you actually possess), (b) the ideal self (i.e., attributes that your self would ideally like you to possess), and (c) the ought self (i.e., attributes that your self believes you should possess) (Higgins, 1987). Discrepancies between the actual self-state and the ideal self-state signify the absence of positive outcomes, leading to dejection-related emotions (e.g., disappointment, dissatisfaction, sadness). On the contrary, the actual–ought self-state discrepancies signify the presence of negative outcomes, leading to agitation-related emotions (e.g., fear, threat, restlessness). The presence of an ought regulatory focus is associated with an avoidance strategy with an accentuated role played by negative affect (Higgins, 1996).

Based on this framework, threats to self-integrity can take many forms depending on the attribute that one considers as important to his/her personal identity. For instance, health information that addresses an attribute that one should possess (e.g., maintaining an appropriate body weight) could be threatening to an individual who believes that he/she currently does not possess the attribute (e.g., overweight individuals) because such information makes the actual–ought self-state discrepancy salient. This would in turn make the individual more likely to avoid or resist the information instead of approaching or accepting the information.

In light of the notion of 'possible selves' that pertains to how individuals think about their potential and their future (Markus & Nurius, 1986; Oyserman & Markus, 1990), self-threat may not necessary originate from representations of the current self. In particular, 'the feared self' refers a quality one does not want to have but is concerned about possibly becoming (Markus & Nurius, 1986). Bandura (1982) emphasized the role of self-efficacy, a belief about one's

competence to perform a behavior, in explaining how self-knowledge can motivate behavior change. Self-efficacy can also be interpreted as individual's ability to develop and maintain positive possible selves (Markus & Nurius, 1986). The feared possible self is difficult for an external actor or message to disprove because only the individual him/herself can determine what is possible. However, in a health context where the 'feared self' is not malleable under one's own control, raising awareness about what individuals are afraid of becoming may as well be threatening to their own selves. For instance, smokers can easily reject the feared self as a cancer patient by considering that they will quit smoking in a near future. Yet, when a health context does not involve maladaptive behaviors that can be fixed, individuals would feel that they cannot escape from the negative possible self.

To sum up, whether or not an individual experiences a self-threat by health information depends on the extent to which (a) one considers a challenged domain to be an important part of self-conception, (b) one perceives discrepancies between the actual self and the ought self indicated in the information, and/or (c) one perceives the salient 'feared self' not malleable with own control.

Coping with the Self-Threat

An individual's need to protect one's own positive self-image often makes it hard to accept important health information and to change one's behavior and beliefs accordingly (Sherman & Cohen, 2006; Klein, 1996). In response to an actual or perceived self-threat, individuals initiate protective adaptations, which may lead to defensive information processing and interpretation. People have a variety of cognitive strategies at their disposal that help ameliorate the threat posed by negative health information. By dismissing, denying, or avoiding the threat posed by health information, people attempt to construe the situation in a manner that

renders less threat to their personal worth and well-being. For instance, individuals can dismiss health information that suggests personal vulnerability and requires them to change risky behaviors (Jemmott, Ditto, & Croyle, 1986; Kunda, 1987). People can even distort their memory about own past unhealthy behaviors or lower the relevance or the importance of behaviors to their health (Klein & Kunda, 1993; Klein, 1996).

Although adopting these cognitive strategies help restore one's perceived self-integrity, it often leads to the rejection of important information, reducing the likelihood of learning and behavioral modification. Thus, defensive adaptation is viewed as "rationalizing" rather than "rational" (Aronson, 1968; Kunda, 1990; Pyszczynski & Greenberg, 1987; defensive bias, Sherman & Cohen, 2002, 2006). In terms of responses to health messages, resistance due to defensive adaptation can manifest cognitively (e.g., counterarguing, bolstering, source derogation), affectively (e.g., anger), and/or behaviorally (e.g., avoidance) (Zuwerink & Devine, 1996; Jacks & Devine, 2000; Jacks & Cameron, 2003). Unrealistic optimism, defined below and a major focus of one of the studies in this dissertation, is another manifestation of defensive adaptation, which may either be activated in response to threatening health information or as a stable individual factor that characterize one's tendency to rationalizing own negative behaviors.

Unrealistic optimism. Unrealistic optimism refers to a mistaken belief that one's risk is lower than that of other people or one's actual risk (Radcliffe & Klein, 2002). By negating one's own vulnerability, individuals are able to maintain a positive self-image and reduce anxiety that may be caused by thinking of uncontrollable future occurrences (Taylor & Brown, 1988). However, underestimating one's own health risk could be problematic for health promotion because it may reduce attention to risk information and the performance of precautionary behaviors (Radcliffe & Klein, 2002; O'Brien, VanEgeren, & Mumby, 1995). Studies have found

that those with biased risk perception tend to employ ego-protective strategies that help them sustain their unrealistic beliefs, such as avoiding risk information and downplaying the riskiness of their behavior (Radcliffe & Klein, 2002; Klein, 1996). Unrealistic optimism can also have behavioral consequences. Research suggests unrealistic optimism is associated with a greater number of behavioral risk factors and performance of risky behaviors (Dillard et al., 2009).

Unrealistic optimism is thought to originate from multiple psychological factors from cognitive errors in processing risk information to self-serving motivations to protect and maintain a positive self-image (e.g., Weinstein, 1980; Hoorens, 1993; Weinstein & Lachendro, 1982). In particular, the self-serving motivation makes unrealistic optimism resistant to correction via information interventions (Klein, 1996; Weinstein, 1983; Weinstein & Klein, 1995). Addressing overlooked personal risk factors could actually prompt defensive information processing and interpretation if the information has negative implications for individual's self-image (Klein & Kunda, 1993). For instance, in one important study, perceived risk vulnerability didn't increase by informing people about personal risk factors or requiring people to think carefully about the attributes that could lead to their own victimization (Weinstein & Klein, 1995). Similarly, another study found that those who were asked to review their sexual history (i.e., risk-increasing behavior) were even more unrealistically optimistic compared to those without a review (Gerrard, Gibbons, & Warner, 1991).

Combined, the available evidence suggests that audience members' motivation to protect the self-concept from a potential threat is a critical component in deterring health persuasion. Blocking one strategy is likely to produce other unintended negative effects because people have multiple strategies at their disposal when self-serving beliefs are challenged (e.g., distortion of memory, reduction of health relevance, Klein, 1996). Thus, removing the need for self-defense

itself or reducing the influence of self-defense motives becomes an important step to improve health persuasion. The next section proposes three strategies with the potential to accomplish this goal.

Proposed Strategies to Reduce Self-Defense Motives

This dissertation examines three strategies designed to reduce the activation or the influence of self-defense motives in processing and accepting health information: self-affirmation, value-expressive message framing, and narrative persuasion. These three strategies can be categorized under "omega persuasion strategies" (based on the category suggested by Knowles & Linn, 2004) that promote change toward persuasive goals by minimizing the avoidance forces. Although omega strategies are likely to be useful for addressing resistance based on self-defense motives, the empirical study of persuasion has focused more attention on "alpha strategies" that attempt to make the persuasive appeals more attractive (e.g., use of stronger arguments, add incentives, increase source credibility; Petty & Cacioppo, 1986).

While there may be many other strategies available to decrease resistance (e.g., two-sided messages, approaches based on inoculation or reactance theory), strategies addressed in this dissertation take the most indirect route, so that it does not raise resistance in the first place. Each strategy has its own theoretical rationale and mechanisms through which theory proposes the strategy could reduce resistance to health persuasion: (1) self-affirmation is designed to take away the need for resistance, (2) value-expressive message framing help audiences sidestep resistance by redefining a health behavior, and (3) narratives distract resistance by absorbing audiences' attention in the story. The following section provides a more detailed summary of the theoretical rationale for each of these strategies. This section also offers propositions, making general predictions about when and how each strategy should be most effective at reducing

resistance based on self-defense motives. I offer more specific study hypotheses and research questions in Chapters III, IV and V, so that predictions can be tailored to each health context.

Remove the Need for Resistance with Self-Affirmation

The most common source of theoretical arguments in support of strategies to reduce self-defense motives is Self-Affirmation Theory (Steele, 1988), which claims that affirming important but topic-unrelated domains of self-identity (e.g., reflecting on personal values or positive traits) can reduce the threat posed by threatening information. Self-affirmation is thought to offer an indirect psychological adaptation that enables both the restoration of self-integrity and the promotion of adaptive behavior (Sherman & Cohen, 2006). Offering alternative self-resources via self-affirmation can help people realize that their self-worth does not hinge on the immediate threat presented, because what matters to people is often the protection of an overall sense of self-integrity (Sherman & Cohen, 2006). As a result, information that otherwise would be self-threatening loses its capacity to function as a threat and thus enables individuals to focus on its informational value and to respond to it in a more open-minded manner.

Numerous studies document the efficacy of self-affirmation in making the self more resilient to criticisms and receptive to threatening health information (e.g., Sherman, Nelson, & Steele, 2000; Epton & Harris, 2008; Harris, Mayle, Mabbott, & Napper, 2007). Evidence in general supports the notion that self-affirmed individuals are less biased about their risk vulnerability or personal relevance of risk information, which in turn makes them more likely to take precautionary actions (e.g., Sherman et al., 2000; Harris et al., 2007). Moreover, investigations in this area suggest that the level of self-threat is an important moderating factor for the effect of self-affirmation (Klein et al., 2010; Harris & Napper, 2005; van Koningsbruggen, 2009). Ironically, studies have found that those who considered an issue

important (and thus self-threatening), rather than unimportant (less threatening), were the most open to self-affirmation-induced changes. For example, in a study that addressed the link between caffeine consumption and fibrocystic disease, only heavy caffeine consumers showed greater openness after affirmation (Sherman et al., 2000), a group that would have responded defensively without such an induction (e.g., Kunda, 1987; Liberman and Chaiken, 1992). There is also some evidence that self-affirmation could backfire among those with a very low level of self-threat. For instance, another study concluded that self-affirmation decreased screening intentions among realists and unrealistic pessimists (those who tend to respond adaptively to health information in the absence of self-affirmation; Radcliffe & Klein, 2002, Wiebe & Black, 1997) after reading a brochure with tailored cancer risk factors (vs. non-affirmed control). The same manipulation successfully increased unrealistic optimists' intentions (Klein et al., 2010).

Combined, self-affirmation is likely to be effective at reducing defensive processing and producing persuasive outcomes among those with higher self-defense motives (operationalized as those who consider the threatened self-domain important in Study 3.3., and unrealistic optimists in Study 5.1). Beyond these individual difference factors, the level of self-threat may also differ by the type of health messages. For instance, narrative forms of messages have been considered to lessen resistance to persuasion (Slater & Rouner, 2002; specific mechanisms to be addressed in detail in the next section). This raises an important question as to whether self-affirmation would be complementary to specific types of health messages that prompt self-defense motives (Study 3.3. addresses the interaction with different values advocated in value-expressive messages; Study 5.1. compares between narrative and informational messages). I thus offer two propositions about the conditional effects of self-affirmation.

Proposition 1: Self-affirmation should increase the effectiveness of a persuasive message for those with higher self-defense motives.

Proposition 2: Self-affirmation should be complementary only with health messages that have self-threatening elements (in terms of content and format).

Sidestepping Resistance with Value-Expressive Message Framing

Persuasion researchers suggest that redefining a situation or a relationship involved in persuasive interactions can sidestep resistance (Knowles & Linn, 2004). For instance, redefining the sales interaction as a cooperative interaction or as a long-term consultation has been recommended to sidestep the resistant that may be raised by a sales pitch (Jolson, 1997; Straight, 1996). In health contexts, redefining a health behavior that was previously perceived negatively by audiences may also be able to sidestep resistance. The Functional Theory of Attitude (Herek, 1986) argues that attitudes toward a health behavior can serve a variety of purposes for attitude holders, and persuasive messages that address underlying reasons for holding an attitude are more effective than those that fail to target such functions. If an attitude toward a health behavior serves to protect self-integrity (i.e., the ego-defensive function), health messages that endorse the behavior are likely to meet resistance as they trigger motivations to defend one's self-image. Although little is known about how to address attitudes that serve ego-defensive ends (O'Keefe, 2002), one possibility is to use value-expressive message framing that provides motivational insights into forming a positive attitude toward health behaviors.

Providing an opportunity to express personal values, the value-expressive function serves to establish or maintain one's important public and private identities (Shavitt & Nelson, 2002). Values and attitudes are related in that specific attitudes are used to enact desirable behaviors or to achieve desired end states (Hullett, 2002, 2004; Hullett & Boster, 2001). Applying to the

health context, value-expressive messages can be used to provide reasons for forming a positive attitude toward health behaviors. For instance, Hullett (2004) utilized health and benevolence value-expressive messages to enhance positive attitudes toward sexually transmitted disease (STD) testing. In the benevolence value-expressive message, STD testing was framed as a way to protect the audience's partner, whereas the health value message addressed implications on audience's own health. In this study, the benevolence value message was more effective at enhancing positive attitudes toward STD than the health value message. For addressing the ego-defensive function, the effectiveness of value-expressive messages may depend on whether the value advocated in a message help resolve audience's self-integrity concerns by reframing a behavior in a positive light for his/her self-concept (e.g., positioning the self as a caring individual).

It is an open question, however, for whom value-expressive messages would be most effective at reducing ego-defensive attitudes. Based on the functional matching hypothesis, audiences who hold value-expressive attitudes are most likely to be attentive to the value-related qualities in a message directly addressing the association between positive attitude and the embodiment of a value. Value-expressive messages should thus be most useful for those who hold value-expressive attitudes toward a behavior as such messages may better serve their psychological needs to express their value. On the contrary, if value-expressive messages were to indirectly address the ego-defensive attitude function, it should be those with higher ego-defensive attitudes for whom the framing strategy would be most effective. Unlike functional matching processes, this would be accompanied by the manipulation of their attitude function, making their attitude to become more value-expressive. Thus, I offer two propositions about the effect of value-expressive message framing:

Proposition 3: Value-expressive message framing should be most persuasive for those with higher self-defense motives (i.e., ego-defensive attitude).

Proposition 4: The manipulation of attitude function should explain the efficacy of value-expressive framing at reducing resistance than functional matching.

Distracting Resistance with Narratives

Social psychology research indicates that distraction can reduce negative cognitive responses to a message that has counter-attitudinal content (Petty & Cacioppo, 1986; Petty & Brock, 1981; Festinger & Maccoby, 1964). Distraction improves persuasion only when a message predominantly produces negative and resistant thoughts because distraction interferes with any kind of thoughts generated by a message; distraction can boomerang when a message generates largely positive thoughts (Petty, Wells, & Brock, 1976). Based on a similar logic, several theorists suggest that the reduction of counterarguments in response to narratives that contain counter-attitudinal elements is a key mechanism in explaining how narratives may help overcome resistance to persuasion (Slater & Rouner, 1996). Narrative is a relatively subtle form of persuasion that may be capable of distracting audiences from counter-attitudinal elements in a message. Then, a narrative approach should also be effective at reducing resistance for those who likely to consider health narratives counter-attitudinal to their positive self-conception (Studies 4.1 and 4.2. operationalized as those with similar autobiographic history with the character; Study 5.1 addresses unrealistic optimism). A proposition is offered:

Proposition 5: Narrative messages should result in greater persuasion than non-narrative messages for those with higher self-defense motives.

A key distinction between stories and nonstories is the standard of truth (i.e., argument appeals with proof and evidence, whereas stories establish with verisimilitude; Bruner, 1986).

Based on this notion, Green and Brock (2000, 2002) proposed that different mental processes may be involved when one encounters a narrative versus an argument. Narrative forms of communication may serve as a cue to audiences to engage in a less critical, but more immersive form of mental engagement (Green, Garst, & Brock, 2004) — often called, transportation, "a distinct mental process, an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p.701).

Narrative impact on audience's real-world beliefs, attitudes, and behavioral change are thought to be a function of the extent to which audiences are transported into the narrative world (Green & Broak, 2000, 2002, 2004; Dal Cin, Zanna, & Fong, 2004). Studies have found that transported audiences are less likely to produce counterarguments or consciously weight the strength of arguments (Green & Brock, 2000; Green et al., 2010). When absorbed into a narrative, audiences temporarily lose an access to real world-facts in favor of accepting those consistent with (although not necessarily explicitly stated within) the story world (Green & Brock, 2000) and perceive the story's situations and characters more realistically (e.g., Dal Cin et al., 2004; Green, Chatham, & Sestir, 2010). Conceptually, self-awareness is likely to be reduced when audiences are immersed into the story world and lose an access to their reality (Green & Brock, 2002). Taking this notion further, engaging narratives may be capable of removing audiences from the self-focused state, making them less able and willing to self-defend in respond to health information. Thus, I offer a proposition to examine the role of transportation in overcoming resistance with narratives.

Proposition 6: Transportation should explain any observed reduction of self-defense motives in narrative persuasion.

Narrative theorists have proposed a variety of narrative mechanisms relevant to story personalization such as identification, perceived similarity (Moyer-Gusé, 2008), empathy (Campbell & Babrow, 2004), and self-referencing (Dunlop, Wakefield, & Kashima, 2010; Escalas, 2007) to explain how narratives produce a personal-level belief change such as perceived risk vulnerability. However, studies have reported inconsistent results with regard to these relationships (e.g., Moyer-Gusé & Nabi, 2010; Moyer-Gusé, Chung, & Jain, 2011; Dunlop et al., 2008, 2010). For instance, in the context of unwanted teen pregnancy, perceived vulnerability increased as a function of the extent to which audiences identified with the story character (i.e., emotionally and cognitively sharing character's identity, Cohen, 2001), but not when they perceived themselves similar to the character (Moyer-Gusé & Nabi, 2010). Considering people's tendency to distance themselves from an individual with negative attributes (e.g., high-risk individuals) (Sestir & Green, 2010), these mixed results may be attributed to the active role played by the self in negative character engagement. It is, however, largely unknown when and how audiences reduce distancing from a negative character in health narratives. One possibility is that the reduction in self-defense motives help audiences to imagine themselves in the character's situation and to relate it to oneself thinking about own past behaviors.

Proposition 7: The reduction in self-defense motives should help audiences produce personalized responses to a health narrative.

CHAPTER III: EGO-DEFENSIVE ATTITUDE FUNCTION

Chapter Overview

People generally don't anticipate they will suffer from depression, but 19.2 percent will experience symptoms of depression at some point in their lifetime (Bromet et al., 2011). It is thus important to develop positive attitudes and beliefs that lead to psychiatric help-seeking (PHS) when individuals become symptomatic. Attitudes toward a health behavior can serve a variety of purposes for attitude holders, and persuasive messages that address underlying reasons for holding an attitude are more effective than messages that fail to target such functions (Herek, 1986). Yet, if an attitude toward a health behavior serves to protect self-integrity, health messages that endorse the behavior are likely to meet resistance as they trigger motivations to defend one's self-image. Little is known about how persuasion might be affected or improved when attitudes serve ego-defensive ends (O'Keefe, 2002).

Guided by Self-Affirmation Theory (Steele, 1988) and the Functional Theory of Attitude (FTA; Herek, 1986), this chapter investigates two promising avenues to overcome the influence of attitudes serving an ego-defensive function: (1) providing insight into the audience's motivational dynamics using value-expressive message framing, and (2) removing the threat to the ego using self-affirmation. A survey (Study 3.1; n = 104) first identified important reasons for holding attitudes toward PHS in relation to the target audiences' value structures and motivational goals. Based on these results, three message conditions (i.e., health or self-direction value-expressive messages and a control message) were written and tested in a randomized experiment (Study 3.2; n = 148) to investigate whether value-expressive messages could be useful for forming positive PHS attitudes. To better understand the mechanisms of how such

motivational appeals work, Study 3.2 also examined the processes of value-expressive function matching that lead to attitude change. In light of the salient ego-defensive attitude function found in Study 3.1, Study 3.3 (n = 242) examined two strategies to overcome attitudes serving ego-defensive ends: self-affirmation and value-expressive message framing. Specifically, I examined the efficacy of value-expressive-messages and self-affirmation in association with two potential sources of self-threat: private and public identity concerns. Also, Study 3.3 proposed a conceptual model to explain the origins of ego-defensive attitude and its influence on message processing and belief change about PHS.

The Context: Psychiatric Help-Seeking for Depression Treatment

Young adults (aged 18-29 years) have the highest prevalence of lifetime depression history (major and minor depression combined) of any age group, with 25% cumulative prevalence at age 24 (Kessler & Walters, 1998). Depression during this critical period of emerging adulthood has both short- and long-term consequences by increasing the risks of substance abuse, work, and relationship problems, and by impairing future development (Van Voorhees et al., 2006; Arnett, 2000). Young adults with depression are more reluctant than older adults to seek professional help, delaying treatment until symptoms and functional impairment are intolerable (Van Voorhees et al., 2006; Thompson, Hunt, & Issakidis, 2004). Young adults have the lowest rates of seeking care and of receiving high quality treatment of any age group (35 and 25 percent respectively; Kessler & Walters, 1998; Young, Klap, Sherbourne, & Wells, 2001). The reluctance of young adults to seek professional mental help is clearly a challenge to effective early interventions (Rickwood, Deane, & Wilson, 2007).

While many factors influence willingness to seek psychiatric help, including personal characteristics, illness factors, and past experiences (Van Voorhees et al., 2006; Fabrigar, Smith,

& Brannon, 1999), belief and attitudinal variables are also important (Komiti, Judd, & Jackson, 2006). Van Voorhees et al. (2006), for instance, found that negative outcome expectancy beliefs, attitudes, and social norms associated with treatment accounted for the majority of variance in a model predicting low perceived need for depression treatment among young adults. Many argue that the prevalence of negative attitudes and beliefs about seeking mental health treatment is a major barrier for early interventions (e.g., Schomerus, Matschinger, & Angermeyer, 2009).

Studies in social psychology and psychiatry have identified specific beliefs and attitudes related to professional help seeking for mental disorders. The belief that psychiatric treatment is an effective way to alleviate suffering from depression is positively associated with psychiatric help seeking (e.g., Wrigley, Jackson, Judd, & Komiti, 2005; Komiti et al., 2006; Schomerus et al., 2009). Self-stigma, defined as negative beliefs about the self as a result of internalizing stigmatizing ideas held by society, is a major barrier to help seeking behaviors (Barney, Griffiths, Jorm, & Christensen, 2006; Schomerus et al., 2009). Stoicism, the belief that seeking outside help is a sign of personal weakness, is associated with negative attitudes toward help seeking and relying on self-help to deal with depression (e.g., internet searches; Komiti et al., 2006; Rickwood et al., 2007). As young adults enter adulthood with a growing need for autonomy and independence, stoic beliefs are salient to many when they experience mental disorders. In fact, recent evidence suggests that a third of adolescents with serious suicidal thoughts, depression, or substance use problems believe that people should handle their own problems without outside help (Rickwood et al., 2007; Gould et al., 2004). Given the important role of attitudinal factors in shaping willingness to seek help when young adults become depressed, one objective should be the design of effective messages to reduce negative beliefs associated with seeking psychiatric

help. To this end, Study 3.1 first investigates motivational bases of PHS attitude in association with the target audiences' value structure.

Study 3.1. Gauging Attitude Functions and Value Correlates for PHS Attitudes

Attitude Functions and Value Structure

The reasoned action approach (Fishbein & Ajzen, 1975) has received criticism for not directly accounting for the motivations associated with holding attitudes toward a target behavior (e.g., van der Pligt & de Vries, 1998). Attitude researchers have increasingly devoted attention to identifying attitude structures and motivational factors that may enhance or inhibit persuasion (e.g., Wang, 2012; DeBono, 1987). The FTA (Herek, 1986, Katz, 1960) suggests that attitudes toward a given object (including behaviors like PHS) can serve a variety of purposes in the attainment of psychological goals: (1) an ego-defensive function to protect the self-concept from real or imagined threats, (2) an experiential (or knowledge) function to make sense of one's personal experience, (3) a utilitarian function to maximize rewards while avoiding punishment, and (4) a value-expressive function to express and live up to one's values (Katz, 1960; Snyder & DeBono, 1989; Julka & Marsh, 2005). Persuasive messages that match psychological motivation(s) underlying the targeted attitude are more effective than those fail to address such functions (*the functional matching effect*; DeBono, 1987; Herek, 1986; Katz, 1960). It is thus useful to first identify the functions a particular attitude may serve.

Attitudes toward PHS could serve multiple psychological functions for young adults. For example, if an individual holds negative attitudes toward PHS due to self-stigmatizing beliefs, the attitude could serve to protect the self-concept in response to attacks on his/her public identity (i.e., the ego-defensive function). If an individual holds a positive attitude toward PHS because s/he thinks maintaining her/his own health is important, the attitude serves a function to

express the value of being healthy (i.e., the value-expressive function). Intrinsic features of PHS, like the practical benefits (e.g., being able to perform well at school) or financial costs of seeking help, could also serve an important reason for PHS attitudes (i.e., the utilitarian function).

Salient attitude functions are likely to influence how individuals respond to health messages that advocate psychiatric treatment. The possibilities of suffering from depression and stigmatization may reflect 'the feared self' that serve important reasons for holding negative attitudes and taking an ego-defensive stance to mental health treatment. Health messages that make 'the feared self' salient in the audiences' minds could increase defensiveness and resistance to persuasion as it threatens their self-conception. If PHS attitude functions to express one's value of 'being healthy', audiences' are likely to be attentive to the attitude object's value-related qualities in a value-expressive message, resulting in a better persuasive outcome. Studies have yet to investigate the prevalence or strength of attitude functions related to PHS, however. Thus, the first research question explores functions associated with attitudes toward PHS.

Research Question 1 (RQ1): What are the important functions of attitudes toward PHS?

Previous work has shown success in using value-expressive messages to change attitudes that have a value-expressive component (Hullett, 2002, 2004). Assuming for now that value-expressive function is one important attitude function for PHS (tested explicitly in RQ1), this study examines the efficacy of value-expressive messages to enhance positive attitude toward PHS. Values and attitudes are related in that specific attitudes are used to enact desirable behaviors or to achieve one's goals (Hullett, 2002, 2004, Hullett & Boster, 2001). For attitudes to be value-expressive, one reason for holding an attitude should be the achievement or maintenance of one or more values (Hullett, 2004). Thus, in order to develop value-expressive messages, one must identify the association between a particular value and a behavior.

Schwartz (1996) emphasized that attitudes and behaviors are guided not by a single value but by tradeoffs among competing values and their motivating goals that are simultaneously associated with a behavior or attitude (Rokeach, 1973). Several different values should be involved in the formation of topic relevant attitudes. Based on the Theory of Integrated Value System (Schwartz, 1996), these values and associated goals could include being healthy ("health") and/or being independent or choosing one's own goals ("self-direction"). To better understand the value structure related to PHS, I pose a second RQ:

Research Question 2 (RQ2): Which values are associated with attitudes toward PHS?

Method

Procedure and participants. An online survey was conducted at a large university in New York between April 7th and 19th, 2011. Student participants (n = 104) voluntarily took part in the study and received an extra credit for their participation. Because this study examines attitude functions and value structure associated with PHS among young adults, college students were considered an appropriate target population. Respondents consisted of 79% women and their ages varied from 18 to 22 (M = 20). Two-thirds identified as White (67%) followed by Asian (27%). Of the respondents, 22% were freshmen, 39% were sophomores, 25% were juniors and 14% were seniors. After signing the consent form, participants completed a questionnaire that included items about personal values, attitudes toward PHS, attitude functions, and basic demographics (Appendix 3A-1). The survey required approximately 20 minutes to complete.

Attitude toward PHS. Seven 7-point semantic differential scale items were used to measure attitude. Participants were asked to report on whether seeing a psychiatrist for depression treatment would be (1) foolish – wise, (2) harmful – beneficial, (3) good – bad, (4) helpful – useless, (5) valuable – worthless, (6) pleasant – unpleasant, and (7) enjoyable –

unenjoyable, if they were experiencing depressive symptoms. Items were averaged into an attitude scale (α = .81, *M* = 5.15, *SD* = .94).

Attitude functions. Five attitude functions were assessed in relation to PHS: experiential-schematic, ego-defensive, value-expressive, utilitarian, and social-expressive. Each function was measured with multiple items adopted and selected from the attitude function literature (e.g., Herek, 1987) and studies in psychiatry that identified specific beliefs associated with help seeking for mental disorders (e.g., Wrigley et al., 2005; Komiti et al., 2006; Schomerus et al., 2009; Barney et al., 2006; Rickwood et al., 2007). On a 7-point Likert scale (1 = not at all true of me, 7 = very true of me), four items assessed value-expressive function (α = .76, *M* = 4.60, *SD* = 1.23; e.g., "my opinions about psychiatric help seeking mainly are based on my beliefs about how things should be"). Five items assessed ego-defensive function (α = .89, *M* = 3.31, *SD* = 1.56; e.g., "my opinions about psychiatric help seeking mainly are based on the fact that I would rather not think about seeking psychiatric treatment"). The utilitarian function was measured with 3 items (α = .68, *M* = 5.20, *SD* = 1.15; e.g., "my opinions about psychiatric help seeking mainly are based on my expectations about what I can expect to get from the treatment"). The experiential-schematic function was also measured with 3 items (α = .60, *M* = 3.72, *SD* = 1.52; e.g., "my opinions about psychiatric help seeking mainly are based on my personal experiences with receiving psychiatric treatment or other counseling services"). The social-expressive function was measured with 4 items (α = .82, *M* = 3.51, *SD* = 1.37; e.g., "my opinions about psychiatric help seeking mainly are based on my perceptions of how the people I care about consider psychiatric treatment as a group").

Values. Using measures from the Schwartz (1992) value survey, participants were asked to rate "the importance of each value as a guiding principle in my life" for the following ten

value domains (0 = of no importance at all; 10 = of supreme importance): power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security (which includes health). These domains are the higher order constructs encompassing several specific values that share motivational characteristics. For example, specific values within self-direction include self-respect, choosing one's own goals, and independence. Respondents rated the importance of each specific value (in total, 56 specific values).

Results

Attitude functions of PHS (RQ1). The association between each function and PHS attitudes was assessed using bivariate correlations. The most salient attitude function was the utilitarian function ($r = .44$, $p < .001$) followed by the ego-defensive function ($r = -.40$, $p < .001$). Consistent with the bivariate correlation results, participants self-reported the highest mean score for the utilitarian function ($M = 5.70$, scale range 1-7). Despite its strong association with PHS attitude, the ego-defensive function received the lowest mean score ($M = 3.31$) among all functions, suggesting that the ego-defensive function is not accessible to attitude holders. The value-expressive function was positively associated with PHS attitudes ($r = .25$, $p = .01$), and its mean score, the second highest among all functions, was significantly higher than the mid-point of the scale ($M = 4.60$, $t = 9.15$, $p < .001$, 1-tailed). Experiential-schematic and social-expressive functions were positively related to the attitude, although the latter was only marginally significant ($r = .23$, $p = .02$ and $r = .17$, $p = .09$, respectively).

Attitude-relevant values (RQ2). Using bivariate correlations, relationships between PHS attitude and each specific value were examined. Significantly associated values were healthy ($r = .21$, $p = .03$), authority ($r = -.21$, $p = .04$), equality ($r = .24$, $p = .01$), a world of peace ($r = .29$, $p = .003$), social justice ($r = .20$, $p = .05$), and helpful ($r = .20$, $p = .04$). The self-direction values

were not associated with the attitude toward PHS: (1) self-respect, $r = .08$, (2) choosing own goals, $r = .01$, and (3) independence, $r = .01$, all p = ns.

Discussion

The utilitarian function was most strongly associated with PHS attitudes, suggesting that health messages that address benefits or efficacy of seeking psychiatric treatment should be more persuasive than not providing such information (Herek, 1986). Results from Study 3.1 also confirmed that negative PHS attitudes indeed serve an ego-defensive end. Interestingly, participants did not directly acknowledge ego-defensiveness as an important reason for their attitude toward PHS in terms of rating on the scale, although such function was strongly associated with the attitude indirectly in terms of correlation. This supports the notion that the ego-defensive function is not accessible to attitude holders and thus highly resistant to change (Katz, 1960). Furthermore, research suggests when ego-threatening elements are made salient by a message, it can result in negative cognitive responses such as counterarguments and message/source derogation (Lapinski & Boster, 2001). It will be thus advantageous to take into account the nature of the ego-defensive motives when advocating PHS to treat depression. However, it has been unclear in the literature exactly how to match or address the ego-defensive attitude function with a persuasive message.

In light of Katz (1960), one possibility is to offer motivational insights into forming a positive attitude. I posit that value-expressive messages can accomplish this goal by framing a behavior as a pursuit of an important value (i.e., in a positive light for the audience's self-conception). In Study 3.1, value-expressiveness was perceived as an important reason for PHS attitude and was also positively associated with the attitude. There are at least two approaches for changing attitudes that have a value-expressive component: (1) change the underlying value to

make changes in the corresponding attitude, or (2) modify the connection between a particular value and the attitude (Hullett, 2004; Katz, 1960). The former strategy is challenging because values are formed over time, grounded in cultural traditions, and thus resistant to change. The latter strategy utilizes value-expressive messages that argue adopting a particular attitude will help the pursuit of the value. When using this strategy, messages addressing audiences' important values were more effective than those do not address (or mismatch) such values (Hullett, 2002, 2004; Hullett & Boster, 2001).

In the context of PHS, two values are potentially useful to be advocated in value-expressive messages: the health and self-direction values. Study 3.1 revealed a positive association between the health value and PHS attitude, reflecting that a major reason for seeking treatment is to recover one's health. Thus, one could use a health value-expressive message (i.e., arguing that a positive attitude toward PHS would be consistent with the pursuit of health value) to strengthen the connection between health values and PHS attitudes. At the same time, previous work shows that self-reliance is one of the major barriers to help-seeking. Study 3.1 found that self-direction values were not associated with PHS attitudes, suggesting that young adults did not see PHS as a proactive and independent choice to be self-directed. Thus, the self-direction value-expressive message attempts to create the connection between self-direction values and positive PHS attitudes.

Study 3.2. Improving Attitudes using Value-Expressive Messages

Study 3.2 tests value-expressive messages specifying goals associated with two values (health and self-direction) as being consistent with holding a positive attitude toward PHS. Messages in common emphasize psychiatric treatment as an effective means to relieve suffering from depression, addressing salient utilitarian attitude function found in Study 3.1. Specifically,

Study 3.2 investigates when and how value-expressive messages would be effective at enhancing positive attitude toward PHS. Because the ego-defensive function was strongly and negatively associated with PHS attitudes in Study 3.1, it is likely that some message recipients will respond defensively to a message that endorses PHS. Study 3.2 thus explores whether the effects of value-expressive messages differ by the level of motivational goals to protect one's own public image.

The Functional Matching Effect and Cognitive Responses

Research has emphasized the role of cognitive responses generated by a message in understanding when and how a message has persuasive effects (e.g., Petty & Cacioppo, 1986). Perceived argument strength is generally considered important determinant of attitudes, in particular, after exposure to a message when audiences are motivated to scrutinize the information (Petty & Cacioppo, 1979). Research suggests that functionally matched messages can promote information processing because people pay more attention and think more about function-relevant attributes of an attitude object (Lavine & Snyder, 1996; DeBono, 1987). This process may involve cognitive responses such as perceived argument strength and message agreement (Shavitt & Nelson, 2002).

Lavine and Snyder (1996) found that the functional matching effect was mediated by message recipients' judgment of the argument quality and perceived persuasiveness of a message. Message recipients' knowledge structure (e.g., existing association between values and an attitude or motivational goals) has been found to bias the evaluation of a persuasive message (Cacioppo, Petty, & Sidera, 1982; Lord, Ross, & Lepper, 1979; Chen, Duckworth, & Chaiken, 1999). Recipients who hold attitudes that are value-expressive are likely to be attentive to the attitude object's value-related qualities in a message directly addressing the association between

positive PHS attitude and the embodiment of a value. Attitudes being value-expressive would mean that the audiences' existing goal is providing the reason for adopting a positive attitude toward PHS (Hullett, 2004). Thus, when one perceives being healthy or self-directed to be important, a message that advocates the association between health/self-direction value and PHS attitude will be evaluated more positively than a message that does not emphasize such a link. Two hypotheses test the functional matching effect:

Hypothesis 1 (H1): A health value-expressive message will produce more positive cognitive responses than a control message for those who hold higher motivational goals to be healthy, but not for lower health goal individuals.

Hypothesis 2 (H2): A self-direction value-expressive message will produce more positive cognitive responses than a control message for those who hold higher motivational goals to be self-directed, but not for lower self-direction goal individuals.

In Study 3.1, the ego-defensive motives were a salient function of negative attitude toward PHS. Considering a negative association between self-stigma and help-seeking attitudes found in previous studies (e.g., Barney et al., 2006), an individual's personal goal to preserve one's own public image is likely to be negatively related to their attitudes toward PHS. If an individual holds negative help-seeking attitudes that serve an ego-defensive function due to stigmatizing thoughts, a message that encourages PHS could increase concerns over self-integrity, resulting in less positive cognitive responses. Value-expressive messages may be able to reduce such defensive reactions compared to the control message. A research question examines whether messages have different impact depending on the importance of protecting one's own public image.

Research Question 3 (RQ3): Do levels of public image protection goals and message type (value-expressive vs. control) interact to produce different patterns of cognitive responses?

Value-Expressive Function Matching Processes

Although the functional approach has focused on addressing *when* persuasive messages will be effective (i.e., functionally matching), the mechanisms of *how* such motivational appeals work are not fully understood (Lavine & Snyder, 1996). To better understand the functional dynamics underlying persuasion in the context of PHS, Study 3.2 examines the processes of how value-expressive messages lead to attitude change. Attitude toward PHS would be value-expressive if the attitude is perceived as a useful way to achieve healthiness and self-directedness (i.e., goals) and if each goal is associated with the corresponding value (i.e., health and self-direction) (Hullett, 2002, 2004). Researchers have examined the process by which the persuasive message content addressing underlying attitude functions leads to attitude or behavior change (e.g., Lavine & Snyder, 1996; Hullett, 2002, 2004; Hullett & Boster, 2001). In particular, Hullett (2002, 2004) proposed that the message content explicitly connecting specific values and the advocated behavior (i.e., value-expressive content) increases the perceptions that performing such behavior is a plausible means for accomplishing the goal (i.e., goal relevance), when the value has a reasonable association with the behavior. If there is reasonable connection between PHS and health (or self-direction) value, perceiving health (or self-direction) content of the message will increase the goal relevance (i.e., PHS as useful for maintaining health or being self-directed). To test this proposition, I offer the following hypothesis:

Hypothesis 3 (H3): A health value-expressive message will increase the perceptions of health goal relevance, while a self-direction value-expressive message will increase the perceptions of self-direction goal relevance.

Increased goal relevance indicates that the attitude toward PHS became more associated with the desired goals (i.e., being healthy and self-directed), if audiences had already considered these goals desirable. Then, depending on the attitude-goal relevance, value-expressive messages will be perceived as relevant to the salient attitude function explaining the matching effect (Hullett, 2004). Thus, higher goal relevance (i.e., value-expressive function matching) will produce more favorable cognitive responses, thereby increasing positive attitudes toward PHS (Hullett, 2002; Hullett & Boster, 2001). I therefore pose a mediation hypothesis:

Hypothesis 4 (H4): Higher perceived goal relevance will produce more positive cognitive responses, which in turn increase positive attitudes toward PHS.

Method

Procedure and participants. A randomized between-subject experiment was administered on the Internet from September 29th to October 27th, 2011. Student participants (N = 148) were recruited from communication and psychology courses. Respondents consisted of 78% women, of whom 70% identified as White. Ages varied from 18 to 22, with an average of 20. Thirteen percent were freshmen, 37% were sophomores, 32% were juniors, and 19% were seniors. Participants were first asked to report their motivational goals to be healthy, to be self-directed, and to protect one's own public image. They were then asked to read a short message that endorsed PHS and to answer to a set of questions measuring message induction, attitudes toward PHS, goal relevance, cognitive responses, and demographic information. See Appendix 3A-2 for full questionnaire items. The study was approved by the university's Institutional Review Board (IRB). The study took, on average, approximately 20 minutes.

Value-expressive messages. In light of previous studies that tested value-expressive messages (e.g., Hullett, 2002, 2004, Hullett & Boster, 2001), three message conditions were

written: (1) a health value-expressive message, (2) a self-direction value-expressive message, and (3) a control message without any value-expressive elements. All three messages stressed the importance of getting psychiatric help when individuals become depressed, before the symptoms and physical impairment reach intolerable levels. In doing so, the messages indicated that depression is a treatable disease and endorsed psychiatric treatment as an effective means to relieve suffering from depression (i.e., addressing utilitarian function). The three message conditions differed in the reasons provided for the importance of getting psychiatric help.

In the health value condition, participants were reminded of their health value by stating "you will see the part of you that *want to be healthy*" and told that they need to seek psychiatric help when depressed so that they could do whatever is necessary to maintain their health ("When you are depressed, give yourself another chance to be healthy by seeking professional help"). PHS was framed as an effective means to bring their mental health back if they have a depressive disorder. In the self-direction value condition, participants were reminded of their self-direction value by stating "you will see the part of you that *want to be more self-reliant"* and told that they need to seek psychiatric help so that they could be more self-directed ("nobody can be held accountable for your life. Only you can choose what is best for you"). To ensure a match between message content and the values comprising the dimensions of self-direction, the message was written based on the Schwartz's (1992) values inventory associating specific values that share motivational characteristics of self-direction (i.e., self-respect, ability to choose one's own goals, and independence). PHS was framed as an independent choice to recover their self-respect. Participants assigned to the control group were presented with the same information but without any value-expressive elements in the message. Instead of framing PHS as a means to achieve a desired state (e.g., recover health or being self-directed), the control message simply

stated that it is "important to approach a professional in deciding how best to cope with depression". See Appendix 3B for full text of all study conditions.

Manipulation checks. I developed 14 items based on previous studies that measured value-expressive message content (Hullett, 2002, 2004). On a scale from 1 (strongly disagree) to 5 (strongly agree), participants reported the extent to which they perceived the message as endorsing PHS as a means for achieving the specific value. Two items measured health value (r = .28, $p < .001$; M = 4.06, SD = .63; e.g., "the message emphasizes that people can take care of their health by seeking professional help when they are depressed"). Eight items measured self-direction value (α = .82, M = 3.23, SD = .64; e.g., "the message emphasizes that people can be self-directed by seeking professional help when they are depressed"). In addition, four items were used to make sure the three message conditions had an equal amount of content addressing the utilitarian function, a strong predictor of PHS attitudes in Study 3.1 (e.g., "the message is about what people can get from seeking professional help for depression treatment"; α = .66; M = 3.61, SD = .68).

Motivational goals. On a 7-point scale (1 = strongly disagree; 7 = strongly agree), I measured the extent to which participants held the goal of (a) being healthy, (b) being self-directed and (c) protecting public image using two items to reflect the specific area of each value domain: e.g., "I work very hard to [take care of my health; be in charge of my life and health; preserve my public image]" (Hullett, 2004). Items for each goal dimension were averaged into scales: (1) health goal (r = .71; M = 3.96, SD = .80), (2) self-direction goal (r = .61; M = 3.94, SD = .67), and (3) public image protection goal (r = .65; M = 3.59, SD = .81).

Goal relevance. On a scale from 1 (strongly disagree) to 5 (strongly agree), participants rated six statements about the relevance of PHS for attaining either health or self-direction goals

(Hullett, 2004). I averaged 2 items measuring health goal relevance into a scale (r = .59; M = 4.13, SD = .66) (e.g., "seeking professional help is useful for bringing people's health back when they experience symptoms of depression"). I measured the self-direction goal relevance with 4 items (α = .79; M = 3.62, SD = .72) (e.g., "seeking professional help is useful for people becoming more self-directed when they experience symptoms of depression").

Cognitive responses. I used 2 items derived from Zhao et al. (2011) to gauge cognitive responses: (1) "Overall, how much do you agree or disagree with the message?" (message agreement; 1 = strongly disagree, 5 = strongly agree, M = 3.90, SD = .74) and (2) "Is the reason the message gave for seeking psychiatric help a strong or weak reason?" (argument strength; 1 = very weak, 5 = very strong, M = 3.46, SD = .80).

Attitudes toward PHS. I used the same semantic differential scales as Study 3.1. I averaged the seven items into an attitude scale (α = .87; M = 5.30, SD = .89).

Results

Manipulation check. Participants were randomly assigned to one of three message conditions: (1) health value-expressive (n = 54), (2) self-direction value-expressive (n = 56), or (3) control (n = 37). To check message inductions, I performed one-way analysis of variance (ANOVA), followed by planned orthogonal contrasts. Participants perceived the health value message as greater endorsing PHS as a means for achieving the health value than other conditions (M_{health} = 4.25, $M_{\text{self-direct}}$ = 3.94, M_{control} = 3.97), $F(2, 145) = 3.79$, p = .03, each pairwise t-test $p < .05$. Respondents also perceived the self-direction value message as greater endorsing PHS as a means for achieving the self-direction value than other conditions (M_{health} = 3.13, $M_{\text{self-direct}}$ = 3.46, M_{control} = 3.02), $F(2, 144) = 7.02$, p = .001, each pairwise t-test $p < .01$. Participants perceived equivalent emphasis on utilitarian attitude function across messages as

intended (M_{health} = 3.71, $M_{self\text{-}direct}$ = 3.56, $M_{control}$ = 3.51), $F(2, 143) = 1.22$, $p = .30$. Thus, the experimental manipulation was deemed successful (Table 3.1).

Table 3.1. *Message Condition Effects on Outcomes*

	Health (n = 54) *M (SD)*	Self-direction (n = 56) *M (SD)*	Control (n = 37) *M (SD)*	*F(df)*
Health value content	4.25(.58)	3.95(.64)	3.97(.64)	3.79(2,145)*
Self-direction value content	3.13(.71)	3.46(.52)	3.02(.59)	7.02(2,144)***
Health goal relevance	4.09(.64)	4.12(.67)	4.19(70)	.25(2,144)
Self-direction goal relevance	3.47(.72)	3.73(.66)	3.68(.77)	2.10(2,145)
Argument strength	3.54(.72)	3.54(.83)	3.22(.83)	2.14(2,143)
Message agreement	3.85(.80)	3.85(.68)	4.03(.73)	.75(2,144)
Attitude toward PHS	5.24(.92)	5.33 (.81)	5.33(.99)	.16 (2,144)

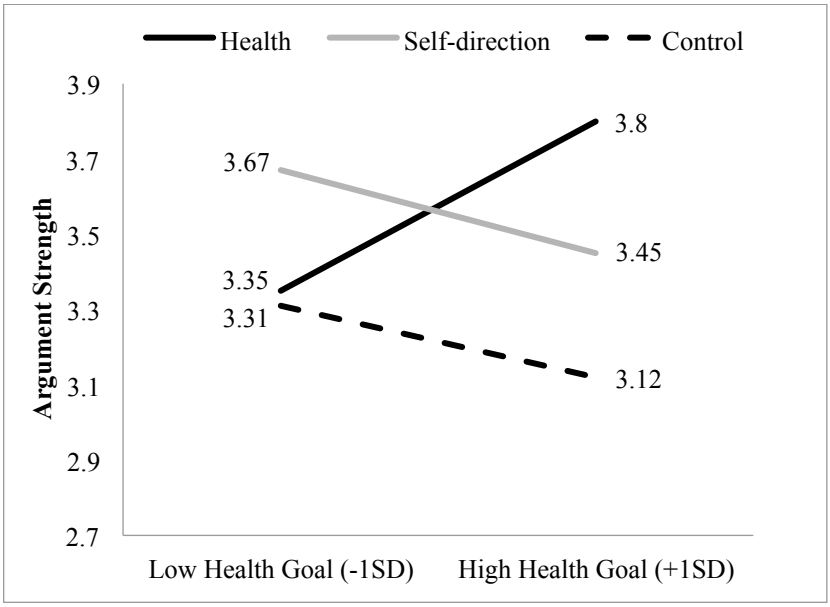
Notes. *$p < .05$, ***$p < .001$.

Functional matching on cognitive responses. I conducted a series of multivariate analysis of variance (MANOVA) with two cognitive responses as dependent variables. I expected the effects of each value-expressive message (vs. control) on cognitive responses to differ by participant's existing motivational goals to be healthy (H1) or self-directed (H2). Thus, message conditions, motivational goals, and their interaction terms were entered in each model. Because no differences in cognitive responses are expected between the two value-expressive messages (health and self-direction), the most appropriate analysis was planned comparisons to compare each value-expressive message with the control condition.

The interaction between message condition and the level of health goal was significant on the multivariate level, $F(2, 139) = 3.43$, $p = .04$, $\eta_p^2 = .06$. On the univariate level, the interaction was significant only for argument strength, $F = 2.96$, $p = .05$, $\eta_p^2 = .04$, but not for message

agreement (p = .83). As shown in Figure 3.1, simple slopes were plotted at high (1*SD* above the mean) and low (1*SD* below the mean) values of the health goal. Compared to the control condition, health value message was perceived as a stronger argument for those who hold higher motivational goals to be healthy (+1*SD*; $M_{control}$ = 3.12 vs. M_{health} = 3.80, p = .009). As expected, there was no control-health value condition difference for those who hold lower motivational goals to be healthy (-1*SD, p* = .87). Motivational goals to be self-directed did not interact with message conditions both on the multivariate and univariate levels. Thus, H1 was partially supported and H2 was not supported.

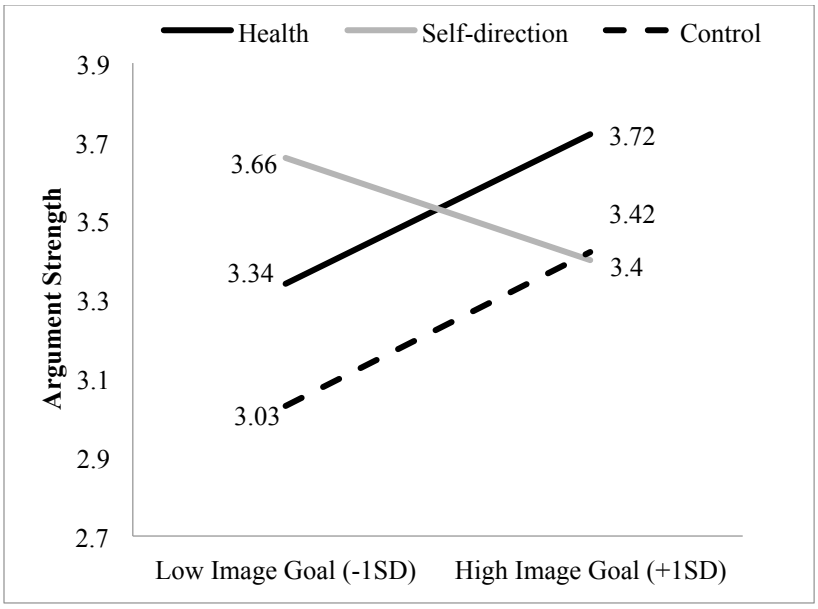
Figure 3.1. *Argument Strength by Message Type and Health Goal*



Addressing RQ3, I performed another MANOVA with message conditions, motivational goals to protect public image, and their interaction term as predictors of argument strength and message agreement. There was a significant message condition-public image goal interaction both on the multivariate, $F(2, 139) = 3.26$, p = .04, η_p^2= .05, and the univariate levels (only for argument strength, F = 3.18, p = .04, η_p^2= .04, but not for message agreement, p = .61). To examine the interaction, simple slopes were plotted at high (1*SD* above the mean) and low (1*SD*

below the mean) values of the image protection goal (Figure 3.2). For those who had a lower goal to protect image (-1 *SD*), the self-direction value message was perceived as a stronger argument than the control message ($M_{control}$ = 3.03 vs. $M_{self\text{-}direct}$ = 3.66, p = .009). There was no condition difference at higher image protection goal (+1*SD*).

Figure 3.2. *Argument Strength by Message Type and Image Protection Goal*

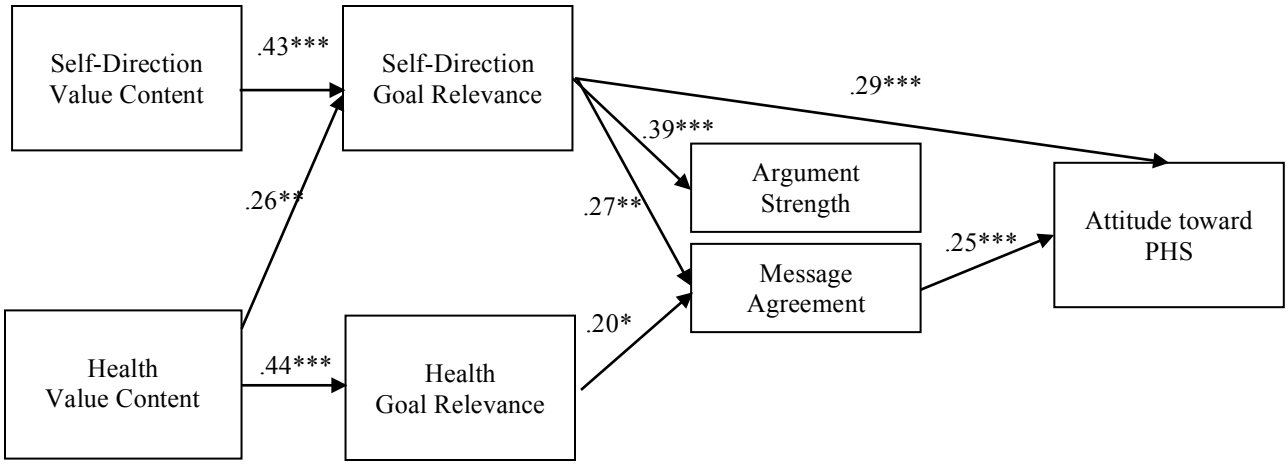


Value-expressive function matching processes. I performed a structural path analysis with structural equation modeling (SEM; SPSS AMOS 21.0) to test hypotheses about the processing of value-expressive messages. I excluded the control condition in these analyses. Due to small sample size (under the recommended sample size of n = 200, Holbert & Stephenson, 2002), I treated exogenous and endogenous factors in the model as manifest variables using composite scores (i.e., model testing was not done using covariance). Paths were constructed based on hypotheses. The final model without insignificant paths yielded the following data-model fit: $\chi 2/df$ = 1.73, *CFI* = .94, and *RMSEA* = .08 (Figure 3.3).

Supporting H3, the self-direction message significantly increased the self-direction goal relevance (β = .43, *SE* = .09, $p < .001$). Interestingly, the health value message increased the

goal relevance of both self-direction (β = .26, *SE* = .09, p = .002) and health values (β = .44, *SE* = .09, p < .001; supporting H3). Both self-direction (β = .27, *SE* = .09, p = .003) and health (β = .20, *SE* = .09, p = .02) goal relevance significantly increased participants' agreement with the message endorsing PHS. Message agreement in turn significantly increased positive attitudes toward PHS (β = .28, *SE* = .10, p = .001; supporting H4). Perceived argument strength increased as a function of higher self-direction goal relevance (β = .39, *SE* = .11, p < .001), but it did not lead to positive PHS attitude (rejecting H4). Self-direction goal relevance rather had a direct effect on PHS attitude (β = .33, *SE* = .11, p < .001).

Figure 3.3. *Model of Processing Value-Expressive Messages*



Notes. Insignificant paths deleted; **p < .01, ***p < .001

Discussion

Study participants who had higher motivational goals to be healthy evaluated health value-expressive messages as a stronger argument than a control message, consistent with the primary premise of attitude function literature which suggests that addressing underlying reasons for holding an attitude increases persuasive effects (Katz, 1960, Herek, 1986). People tend to put more cognitive resources toward function-relevant attributes of an attitude object (Lavine &

Snyder, 1996; DeBono, 1987). It is likely that participants (who hold health value-expressive attitudes) were attentive to the attitude object's value-related qualities, therefore a message directly addressing the association between PHS attitudes and an important value were perceived as a stronger argument (vs. not presenting value-related elements) because it better serves their needs. However, the matching hypothesis was not supported for the self-direction value message.

Scholars have emphasized the importance of choosing matching values for value-expressive messages to have a persuasive influence (Hullett, 2002, 2004). Study 3.2 chose the self-direction value to change any existing negative relations between PHS attitudes and the self-direction value because studies have found self-stigmatizing thought and stoic beliefs (or self-reliance) as major barriers to help-seeking behaviors (Barney et al., 2006, Komiti et al., 2006). Along with Study 3.1 result that found no association between self-direction values and PHS attitude, self-direction may not be the core value that serves participants' value-expressive PHS attitude in their knowledge structure (i.e., value-mismatched), therefore rejecting the matching hypothesis.

On the other hand, the effect of the self-direction value message was dependent on message recipients' personal goal to protect their public image. For those who had a lower goal to protect their image, the self-direction value message was perceived as a stronger argument than the control message, whereas there was no condition difference for those who had higher image protection goals. Pre-existing knowledge structures of message recipients guide their subsequent message processing and acceptance (e.g., Lord et al., 1979, Cacioppo et al., 1982). Individuals with higher image protection goals are likely to have stronger stigmatizing beliefs associated with receiving mental health treatment (i.e., viewed as unbalanced or weak relying on external help). For these individuals, the self-direction value message that aims to create the self-

direction value–PHS attitude relation may not be perceived as a valid argument (vs. control) because it is inconsistent with their pre-existing knowledge structures. Yet, for those with lower image protection goals (i.e., no inconsistent information), the self-direction value message could be more capable of creating a link between the specified value and PHS attitude.

Study 3.2 also examined the processes by which value-expressive content leads to positive attitude change. Message inductions successfully established the connection between PHS attitudes and the goal of being healthy or self-directed. Health value-expressive message content increased the health goal relevance, which in turn allowed message recipients to (1) be in more agreement with the argument advocated in the message and (2) enhance their attitudes toward PHS. Self-direction value-expressive message content made PHS attitudes relevant to the recipients' goal to be self-directed (i.e., attitudes became self-direction value-expressive). Only when the attitudes were successfully associated with the goal of being self-directed did message recipients produce favorable cognitive responses. Although perceived argument strength is considered important mediating variables in persuasion (Lavine & Snyder, 1996), only message agreement had a statistically significant relationship with PHS attitudes. A direction for future research is to address the conditions under which cognitive responses might influence attitudes when presented with value-expressive messages.

In light of the salient ego-defensive function, public health practitioners should consider factors that might pose a threat to recipients' self-integrity when designing persuasive messages to endorse PHS. Study 3.2 examined one potential source of self-threat (i.e., a social concern related to one's public identity) and found that the self-direction value message (vs. control) may benefit those who have lower motivational goal to protect their public image. Research has found that message recipients respond defensively to health information especially when they perceive

personal relevance of the information (Liberman & Chaiken, 1992). For instance, individuals at high perceived risk are often the least persuaded by health messages due to the concerns over their important self-concept, 'being healthy' (Liberman & Chaiken, 1992; Kunda, 1987). In this sense, the effect of health value-expressive messages may be dependent on the level of perceived susceptibility to experience depression. Specifically, the health value message could be threatening for the high-risk group because such message reminds them of the possibility of 'not being healthy', whereas it does not pose a threat for those who perceive low susceptibility. To address these possibilities, Study 3.3 further examines the effects of value-expressive messages in association with two sources of self-threat (i.e., public and private identity concerns). To investigate strategic ways to address the ego-defensive function of PHS attitude, Study 3.3 also tests the efficacy of self-affirmation manipulations that had been used in psychology literature to reduce defensive responses (Sherman & Cohen, 2006).

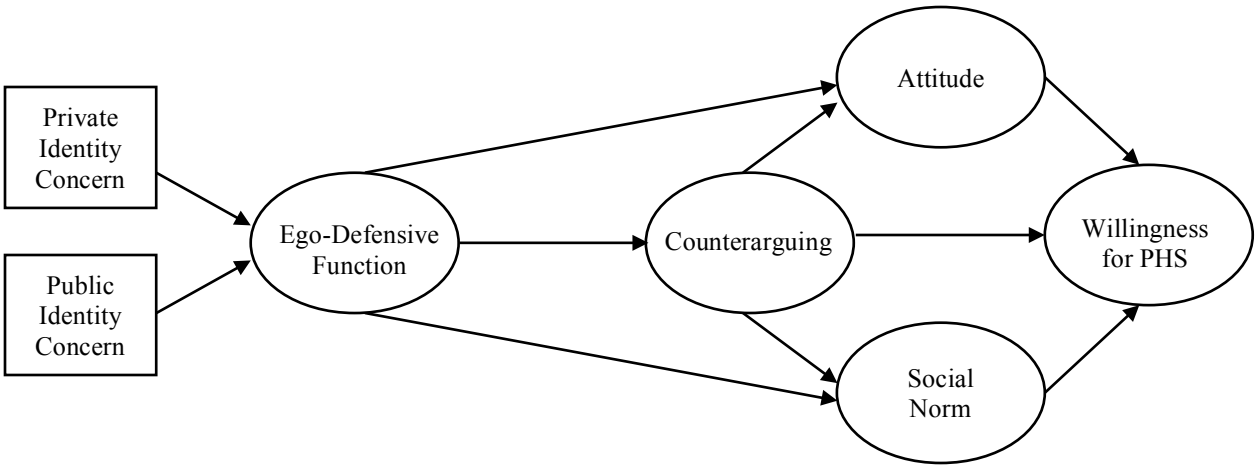
Study 3.3. Overcoming Attitudes Serving Ego-Defensive Function

Ego-Defensive Attitude Functions of Psychiatric Help-Seeking

The FTA (Herek, 1986, Katz, 1960) suggests that attitudes toward a given object (including behaviors like PHS) can serve a variety of purposes in the attainment of psychological goals. Study 3.1 showed that three attitude functions are most relevant to PHS: (1) a utilitarian function to maximize rewards and benefits by seeking treatment, (2) an ego-defensive function to protect self-integrity by disassociating the self from the idea of help-seeking, and (3) a value-expressive function to express and live up to one's important values (such as being healthy). In particular, an ego-defensive motivation was an important attitude function of PHS, suggesting that messages endorsing PHS should take into account self-threatening sources to enhance persuasion.

Attitudes serving an ego-defensive function promote the management of internal conflicts that arise by counter-attitudinal messages about the self (Katz, 1960). Researchers generally agree that the ego-defensive function is complex, not accessible to attitude holders, and highly resistant to change (Katz, 1960). Lapinski and Boster (2001) conceptualized the ego-defensive function as a causal process in response to ego-threatening messages producing counterarguments and derogating the message and its source. As presented in Figure 3.4, Study 3.3 instead treats the ego-defensive function as a quantifiable variable (Herek, 1987) and proposes a conceptual model that explains the origins of ego-defensive attitude and its influence on message processing and belief change about PHS.

Figure 3.4. *A Conceptual Model: Origins and Influence of the Ego-Defensive Function*



The ego-defensive function is more likely to be salient when a message threatens an important self-concept (Das, De Wit, & Stroebe, 2003). As a result, defensiveness can be expressed in several different ways: downplaying the seriousness (Jemmott, Ditto, & Croyle, 1986) or personal relevance of the health risk (Harris, Mayle, Mabbott, & Napper, 2007), or processing information in a hyper-critical way (Liberman & Chaiken, 1992). Counterarguments to health messages – explicit refutations of a message's advocated position –may represent a

form of resistance generated by the ego-defensive function, denigrating the source of information to bolster one's self-image (Lapinski & Boster, 2001). Guided by previous work (Herek, 1986; Lapinski & Boster, 2001), I posit that the ego-defensive function will directly or indirectly (through counterarguing) influence message recipients' attitude and normative beliefs about PHS, which in turn change their willingness to engage in PHS (Ajzen, 1991).

Origins of ego-defensive attitude. An ego-defensive attitude is often formed to conceal one's true nature or own insecurities in response to potential threats to one's ego (Katz, 1960). In the context of PHS, self-integrity concerns may originate from 'the feared self' in the domains of both private and public identities.

"Being a healthy person" is an important part of how people want to perceive themselves (i.e., private identity, Sherman & Cohen, 2006). Health messages that impose or remind a person of his/her vulnerability to a risk may produce defensive reactions because it threatens individual's self-concept as a "healthy person" (Sherman & Cohen, 2006; Steele, 1988). A message endorsing PHS poses the self-evaluative burden of acknowledging one's susceptibility to suffer from depression in a future. Risk susceptibility has been used to conceptualize the self-threat level because people tend to consider health information more personally relevant when they perceive themselves vulnerable to the risk (Rogers, 1975). This line of investigation either *manipulated* the level of self-threat by giving false feedback regarding one's vulnerability (e.g., Das et al., 2003) or *measured* self-threat based on past risky behaviors (e.g., Harris & Napper, 2005). Study 3.3 employs the measurement method and posits that those who perceive higher depression susceptibility are more likely to be ego-defensive about PHS and the message endorsing PHS.

Stigmatizing ideas associated with PHS (e.g., being viewed as unbalanced or neurotic by others) may also increase self-integrity concerns because "being reasonable and balanced" is an important part of how people want to present themselves to others (i.e., their public identity). Studies in social psychology and psychiatry have considered self-stigma, negative beliefs about the self as a result of internalizing stigmatizing ideas held by society, as a major barrier to help-seeking behaviors (e.g., Barney et al., 2006; Schomerus et al., 2009). Because young adults are sensitive to social self-presentation, messages endorsing PHS may pose a threat to their self-concept as it raises the possibility of stigmatization. The level of self-threat should thus vary by the extent to which an individual values protecting their own public image. Those who have a stronger motivational goal to protect their own public image should be more likely to be ego-defensive about PHS and a message promoting PHS.

Use of Value-Expressive Message Framing and Self-Affirmation

The attitude function literature suggests conditions under which persuasive outcomes are most likely – when a message addresses important attitude functions that match audiences' psychological needs (Herek, 1986). Although the functional matching hypothesis has received extensive empirical support across different contexts, it has been unclear exactly how to match the ego-defensive attitude function with a persuasive message. To my knowledge, no study to date has offered clear guidance on ways to address attitudes serving an ego-defensive end, except Katz's (1960) conceptual work that advocated the removal of threats or the offering of motivational insights. In light of Katz (1960), Study 3.3 investigates two strategies to address the ego-defensive function of PHS attitude: value-expressive message framing and self-affirmation.

Value-expressive message framing. The usefulness of the functional approach for health persuasion has been most successfully addressed with the value-expressive function. Hullett

(2004), in particular, utilized health and benevolence value-expressive messages to enhance positive attitudes toward sexually transmitted disease (STD) testing. Values and attitudes are related in that specific attitudes are used to enact desirable behaviors or to achieve desired end states (Hullett, 2002, 2004; Hullett & Boster, 2001). Guided by this framework, Study 3.2 developed and tested value-expressive messages to provide reasons for seeking PHS (to be healthy or self-directed) with the potential to enhance positive attitudes toward PHS. Specifically, messages were designed to modify the connection between relevant values (i.e., health and self-direction) and attitudes toward PHS. The purpose of using a health value-expressive message was to strengthen the connection between the health value and positive PHS attitudes, whereas the self-direction message attempted to reduce any existing negative association by reframing PHS as a pursuit of the self-direction goal.

Messages addressing underlying attitude functions are thought to lead to greater persuasion through recipients' judgment of the argument quality (e.g., Lavine & Snyder, 1996). Functionally matched messages are perceived as more persuasive because people are attentive to and carefully process the elements that serve their psychological needs – function-related qualities in the message. Based on the functional matching hypothesis, audiences who hold value-expressive PHS attitudes are most likely to be attentive to the value-related qualities in a message directly addressing the association between positive PHS attitude and the embodiment of a value. Study 3.2 found support for the matching hypothesis only for the health value-expressive message, but not for the self-direction value message when participants' motivational goals to be healthy or self-directed are considered. Study 3.3 further examines whether this pattern holds in producing counterarguing and persuasive outcomes (positive attitude and willingness) when considering participants' perceived value-expressive function.

Hypothesis 5 (H5): A health value-expressive message (vs. control) will (a) produce less counterarguing and (b) enhance positive attitudes toward PHS and (c) willingness to engage in PHS for those with a higher value-expressive attitude, but not for lower value-expressive individuals.

The value-expressive function serves to establish or maintain one's important public and private identities by providing an opportunity to express personal values (Shavitt & Nelson, 2002). In Study 3.2, the effect of a self-direction value message interacted with the level of motivational goals to protect one's own public image. If a person holds an ego-defensive PHS attitude because of the potential threats to his/her public identity, a self-direction value-expressive message may help resolve self-integrity concerns by providing motivational insights for forming a positive PHS attitude. For those concerned with stigmatization, for instance, the self-direction value message could help reframe PHS in a more positive light for their self-image (i.e., means to be self-directed) addressing reasons for their ego-defensive attitude. This may in turn enhance supportive normative beliefs about PHS as those concerned with stigmatization are most likely to misperceive help-seeking as a sign of weakness and socially unacceptable.

Hypothesis 6 (H6): A self-direction value-expressive message (vs. control) will enhance (a) positive attitude, (b) social norm, and (c) willingness to engage in PHS for those with higher public image protection goal, but not for those with lower public image goals.

Self-affirmation. Self-affirmation theory (Steele, 1988) posits that affirming important but topic-unrelated domains of self-identity (e.g., reflecting on personal values) can help reduce the threat posed by health messages, making the self more resilient to criticism and receptive to threatening information. Scholars explain the mechanism of the self-affirmation effect as the protection of an overall sense of self-integrity, allowing individuals to reflect on an alternative

source of identity (Sherman & Cohen, 2006). The central premise of self-affirmation theory has received support in a wide range of topics that involve self-threat, including political identity (e.g., Cohen, Aronson, & Steele, 2000) and health (e.g., Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000). Although there is some evidence that self-affirmation can enhance health-promoting behaviors such as fruit and vegetable intake or sunscreen use (e.g., Epton & Harris, 2008; Jessop, Simmonds, & Sparks, 2009), no study to date has examined whether self-affirmation promotes health behaviors associated with social stigma like PHS.

Research in general supports the notion that self-affirmed individuals are less likely to engage in message derogation and develop less-biased beliefs about their risk vulnerability, which in turn make them more likely to take precautionary actions (e.g., Jessop et al., 2009; Sherman et al., 2000; Harris et al., 2007). Recent investigations in this area suggest that self-affirmation works only when the self-threat is present (van Koningsbruggen, 2009; Klein et al., 2010). For those who hold ego-defensive PHS attitudes, then, self-affirmation should reduce the need for self-defense when presented with a message endorsing PHS. Thus, I offer the following hypotheses testing interactions between self-affirmation and levels of self-threat originated from either private or public identity concern:

> *Hypothesis 7 (H7)*: Self-affirmation will (a) reduce counterarguing and (b) enhance positive attitude and (c) enhance willingness to engage in PHS for those with higher depression susceptibility, but not for those with lower susceptibility.
>
> *Hypothesis 8 (H8)*: Self-affirmation will (a) reduce counterarguing and (b) enhance positive attitude and (c) enhance willingness to engage in PHS for those with higher public image protection goals, but not for those with lower public image goals.

Interaction between affirmation and value-expressive framing. Two recent studies reported interesting interactive patterns between self-affirmation and message framing. One recent study found that a message focused on relational consequences of unprotected sex (e.g., "added stress on my life partner") was more persuasive than a message that emphasized personal consequences (e.g., "added stress on my life"), but this pattern dissipated when participants were self-affirmed before exposure to the messages (Ko & Kim, 2010). Another study found that self-affirmation produced more favorable responses to loss-framed PSAs, but not in response to gain-framed PSAs (Zhao & Nan, 2010). These studies suggest that the effect of self-affirmation may depend on whether or not a health message contains self-threatening elements for audiences. Thus, a research question asks:

Research Question 4 (RQ4): Does self-affirmation moderate the influence of value-expressive messages on attitude change?

Method

A between-subjects design experiment was employed with 3 message conditions (health or self-direction value-expressive messages and a control message) x 2 self-affirmation conditions (affirmed vs. non-affirmed). Three message conditions developed and tested in Study 3.2 were used: (1) health value-expressive message, (2) self-direction value-expressive message, and (3) a control message without any value-expressive elements.

Procedure and participants. I recruited college students (n = 242) from communication and psychology courses. Respondents consisted of 80% women and two-thirds self-identified as White (63%) followed by Asian (26%). Ages varied from 18 to 27, with an average of 20 (SD = 1.34). Twenty-one percent were freshmen, 31% were sophomores, and 21% were juniors. Each participant completed two phases of data collection. Participants were first asked to complete an

online questionnaire that included items about their attitude toward PHS, attitude functions, motivational goals, perceived susceptibility to depression, and basic demographics. Because self-affirmation has an effect only when its induction precedes a self-threat (Napper, Harris, & Epton, 2009), I separated pre-message measures (that may be self-threatening) from the affirmation induction with a few days' time interval. A few days after completing the first survey, participants received an email invitation that included a link to a randomly assigned experimental condition on the Internet. After completing a questionnaire designed to induce self-affirmation (or a matched control; explained below), participants were presented with one of three message conditions and then reported their responses to the message.

Manipulation of self-affirmation. A variety of methods have been used to induce self-affirmation, including positive personality feedback and an essay task writing about one's own core values (e.g., Cohen et al., 2000, Sherman et al., 2000). This study used the self-affirmation task (and a matched control) developed and tested by Napper et al. (2009). The method comprised of 32 items adapted from the Values in Action (VIA) Strengths scale that covers six core value themes (Peterson & Seligman, 2004): wisdom and knowledge, courage, humanity, justice, temperance, and transcendence. This method had the same or better manipulation induction capability compared to other methods (such as essay tasks), while offering several benefits: (1) it does not involve pre-testing (to examine important values) or assignment to different scales, and (2) it is not restricted to a single value or characteristic.

Participants in the self-affirmation condition (n = 109) were told that their task was to measure their personal strengths and were asked to "choose the response that most closely reflects your thoughts" on the VIA scale (1 = very much unlike me; 5 = very much like me). For example, 32 items included "I value my ability to think critically" and "I love to learn new

things." The questionnaire is designed to function as a mindset manipulation rather than measuring important self-values. Participants in the control condition (n = 133) rated a well-known celebrity on the same attributes, instead of rating for themselves. The control task lacks the focus on personal values and strengths (i.e., the affirmational ingredient), while other respects are identical to the self-affirmation manipulation. Participants were told that the task is "designed to measure the way in which people make judgments about the personal strengths of other people" and in their case to answer the questions thinking about the qualities of David Beckham. Reponses were given on the equivalent 5-point scale, with "him" replacing "me" (e.g., "He values his ability to think critically").

Attitude function. Two functions relevant to Study3.3 were assessed with the same items used in Study 3.1. On a 7-point Likert scale (1 = not at all true of me, 7 = very true of me), 4 items assessed the value-expressive function (α = .76, M = 4.40, SD = 1.10; e.g., "my opinions about PHS mainly are based on my beliefs about how things should be"). Five items assessed the ego-defensive function (α = .86, M = 3.51, SD = 1.40; e.g., "my opinions about PHS mainly are based on the fact that I would rather not think about seeking psychiatric treatment"). As expected, pre-message attitude toward PHS was negatively associated with the ego-defensive function (r = -.49, $p < .001$), whereas the value-expressive function was positively correlated with the attitude (r = .36, $p < .001$).

Motivational goals. Participants reported the extent to which they hold the goal of protecting their public image (1 = strongly disagree; 7 = strongly agree) on 4 items developed based on Hullett (2004): e.g., "I work very hard to preserve my public image", "protecting my public image is one of the biggest goals in my life". I averaged responses into a public image protection goal scale (α = .78, M = 4.27, SD = 1.11). In addition, I measured motivational goals

to be healthy (4 items α = .82, *M* = 5.44, *SD* = 1.09) and self-directed (4 items α = .70, *M* = 45.35, *SD* = .82) to examine their relation to the value-expressive attitude function. Motivational goals to be healthy (*r* = .20, *p* = .002) and self-directed (*r* = .15, *p* = .02) were positively related to the value-expressive attitude function.

Perceived depression susceptibility. On a 7-point scale from 1 (very unlikely) to 7 (very likely), respondents rated their likelihood of experiencing depressive symptoms between now and the end of the academic year (*M* = 3.92, *SD* = 1.97).

Counterarguing. Two close-ended items asked, "while reading the message, I sometimes found myself thinking of ways I disagreed with what was being presented" and "I found myself looking for flaws in the way information was presented in the message" (Moyer-Gusé & Nabi, 2010; 1 = strongly disagree, 5 = strongly agree; *r* = .61; *M* = 2.79, *SD* = .84).

Willingness to seek psychiatric help. I measured willingness to engage in PHS, rather than intentions, because this study recruited largely healthy young adults without depressive symptoms. This study thus asked them to think of a hypothetical situation (yet likely for many of them) in which they themselves were being influenced by depression (Gibbons, Gerrard, Ouellette, & Burzette, 1998). Participants reported the extent to which they "plan to", "intend to", "will try to", or "would" seek psychiatric help if they experience symptoms of depression in the future (1 = very unlikely; 7 = very likely; 6 items α = .97, *M* = 4.58, *SD* = 1.31).

Attitude toward PHS. The same as Study 3.1 and 3.2, seven 7-point bipolar adjective items measured pre and post-message attitudes toward PHS (Ajzen, 1991). Participants reported on whether seeing a psychiatrist for depression treatment would be (1) foolish-wise, (2) harmful-beneficial, (3) good-bad, (4) helpful-useless, (5) valuable-worthless, (6) pleasant-unpleasant, and

(7) enjoyable-unenjoyable, if they were experiencing depressive symptoms (pre-message: α = .89, *M* = 5.04, *SD* = .99; post-message: α = .89, *M* = 5.01, *SD* = .89).

Social norm. This study measured injunctive and descriptive norms with regard to close friends, roommates or housemates, and family members as salient referents (Ajzen, 1991). An injunctive norm item asked, "how do you think your *close friends* would feel about you seeing a psychiatrist for a problem like depression?" (1 = strongly disapprove; 7 = strongly approve; 3 items α = .79). Descriptive norm items included "how likely is it that your *close friends* would seek psychiatric help for a problem like depression?" (1 = very unlikely; 7 = very likely; 4 items α = .69). Injunctive and descriptive norms were highly correlated (*r* = .50), thus all 7 items were averaged into a social norm scale (α = .79, *M* = 4.53, *SD* = .91).

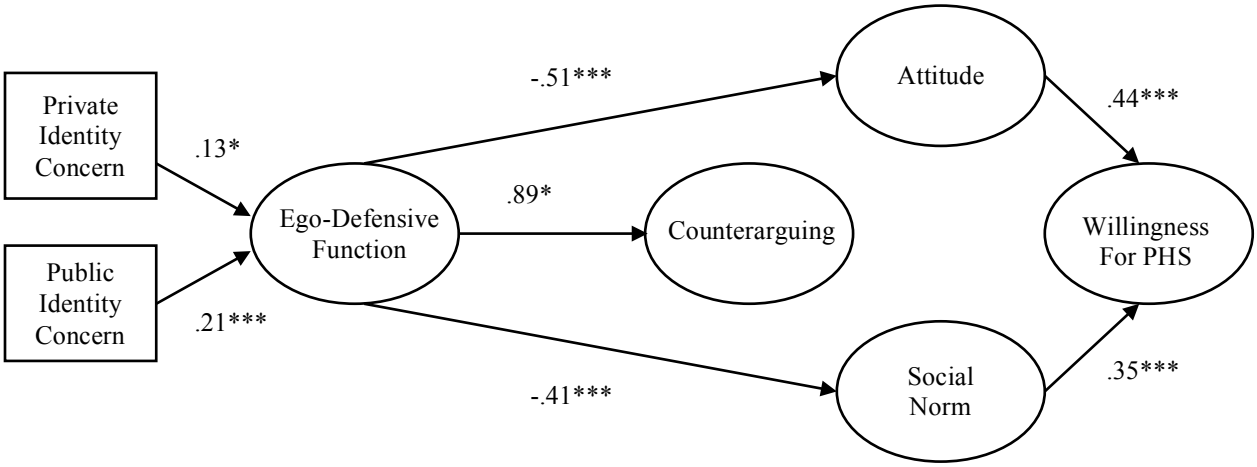
Results

Origins and influence of the ego-defensive attitude function. I first tested the proposed conceptual model with structural equation modeling (SPSS AMOS 21.0; maximum likelihood method). The confirmatory factor analysis (CFA) model that imposed all model factors to covary adequately fit the data: *CMIN/df* = 2.66, *CFI* = .90, and *RMSEA* = .08. The structural equation model presented in Figure 3.5 also yielded reasonable data-model fit: *CMIN/df* = 2.62, *CFI* = .90, and *RMSEA* = .08.

There were significant structural paths between the ego-defensive attitude function and (1) perceived depression susceptibility (β = .13, $p < .05$) and (2) public image protection goal (β = .21, p = .001). The ego-defensive attitude function significantly increased counterarguing (β = .89, p = .03), whereas it decreased positive attitude and normative beliefs about PHS (respectively, β = -.51, β = -.41, both $p < .001$). The ego-defensive function was found to carry the influence of two self-integrity concerns to attitude and normative beliefs about PHS, but not

significantly so for counterarguing (sobel z statistic): (1) private identity concern → ego-defense → counterarguing (z = 1.60, p = .11), attitude (z = -2.25, p = .02), social norm (z = -2.16, p = .03); (2) public identity concern → ego-defense → counterarguing (z = 1.81, p = .07), attitude (z = -2.99, p = .003), social norm (z = -2.74, p = .006). Willingness to engage in PHS increased as a function of positive attitude (β = .44), and supportive social norm (β = .35, both $p < .001$). Counterarguing was not associated with attitude, social norm, or willingness.

Figure 3.5. *A Structural Path Model: Origins and Influence of the Ego-Defensive Function*

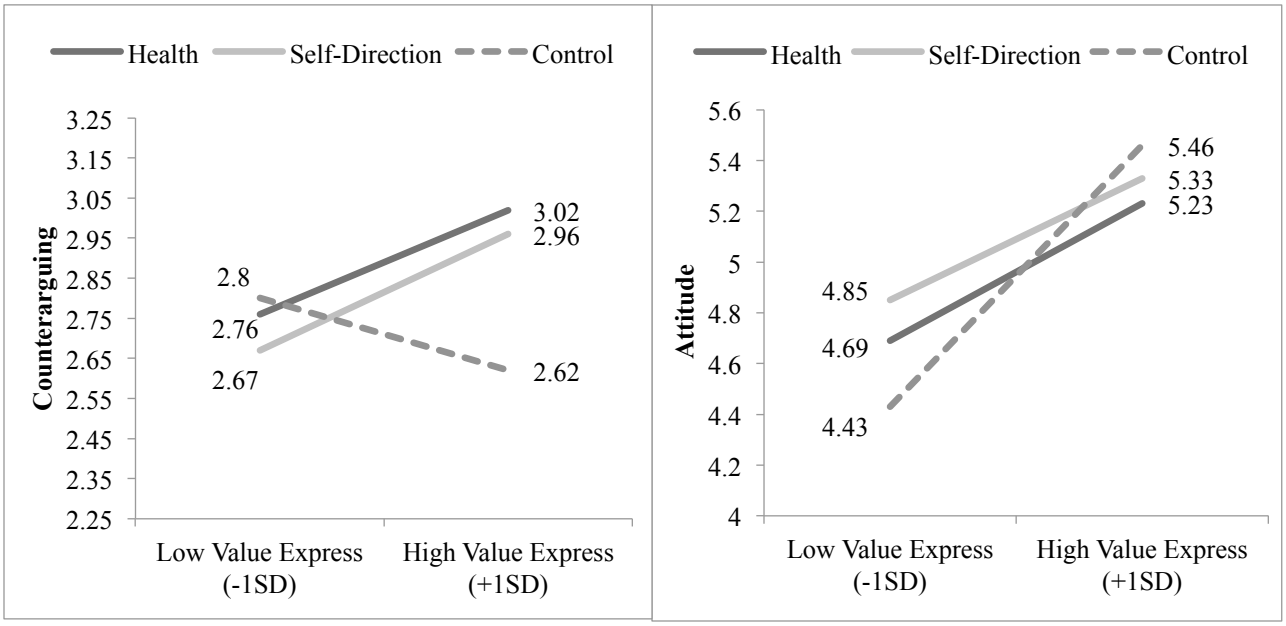


Notes. Insignificant paths deleted. Standardized coefficients * $p < .05$, ***$p < .001$

Effects of value-expressive message framing. I examined the interaction between message conditions and the value-expressive function using analysis of covariance (ANCOVA; H5, Figure 3.6). The levels of value-expressive function moderated the effects of value-expressive messages (vs. control) on attitude, $F(1, 242) = 5.28$, p = .02, and counterarguing, $F(1, 242) = 4.02$, $p < .05$, but not on willingness to engage in PHS. Simple slopes were tested at values one standard deviation above and below the mean of value-expressive function (Cohen, Cohen, West, & Aiken, 2003). Contrary to H5, for lower value-expressive individuals (-1*SD*), value-expressive messages produced more positive PHS attitude (M = 4.77, SD = .09) compared to the

control (M = 4.43, SD = .14), F = 4.52, p = .04. When analyzed separately for each value-expressive message, the self-direction value message significantly enhanced positive attitude (vs. control, p = .02), but not significantly so when exposed to the health value message (p = .15). For higher value-expressive individuals (+1SD), counterarguing increased when exposed to value-expressive messages (M = 2.99, SD = .10) compared to the control (M = 2.62, SD = .12), F = 5.63, p = .02. Thus, H5 was not supported, and in fact findings run in the direction opposite of that predicted in study hypotheses.

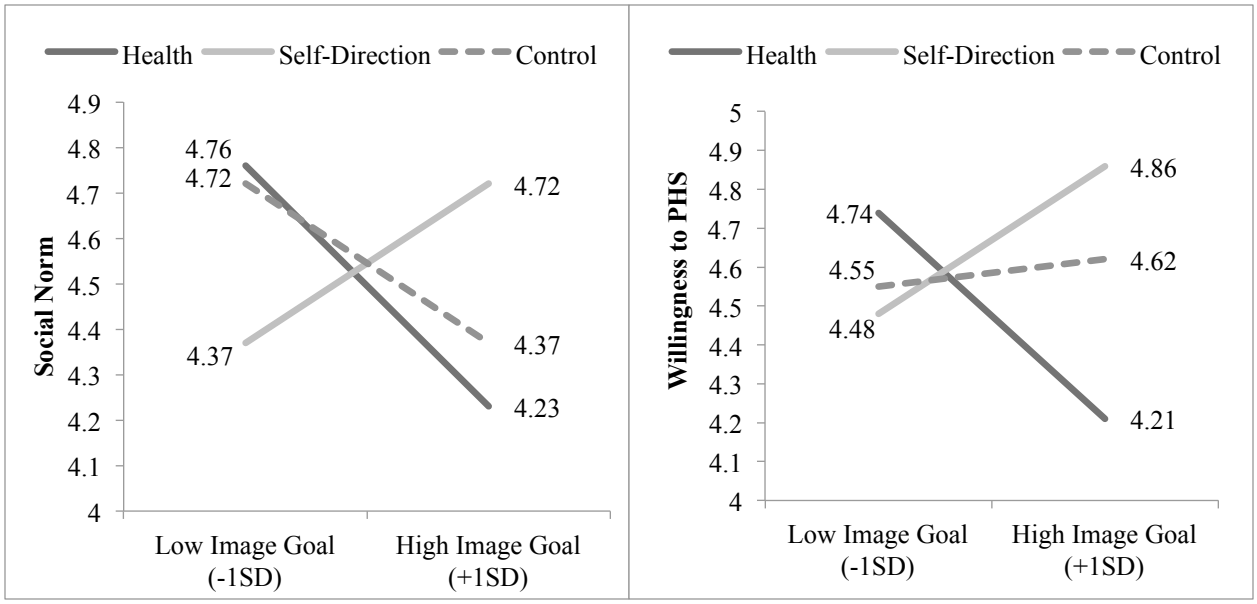
Figure 3.6. *Functional Matching on Counterarguing and Attitude*



To examine H6, I performed a series of ANCOVAs on attitude, social norm, and willingness to PHS (Figure 3.7). I found a significant self-direction message-public image goal interaction on social norm: vs. control, $F(1, 169) = 6.77$, p = .01; vs. health message, $F(1, 154)$ = 8.94, p = .003. The goal to protect public image increased supportive social norm when exposed to the self-direction message (β = .20, p = .06), whereas social norm decreased with increasing image protection goal after reading the health value (β = -.28, p = .02) or control message (β = -

.20, p = .07). For those with higher image protection goal (+1*SD*), the self-direction value message (M = 4.72) increased supportive social norm about PHS compared to the control (M = 4.37, p < .05; vs. M_{health} = 4.23, p < .01; both 1-tailed). The opposite pattern holds for those with lower image protection goal (-1*SD*, $M_{self\text{-}direct}$ = 4.37, M_{health} = 4.76, $M_{control}$ = 4.72, each pairwise comparison, p = .07).

Figure 3.7. *Social Norm and Willingness by Message Condition and Public Image Goal*



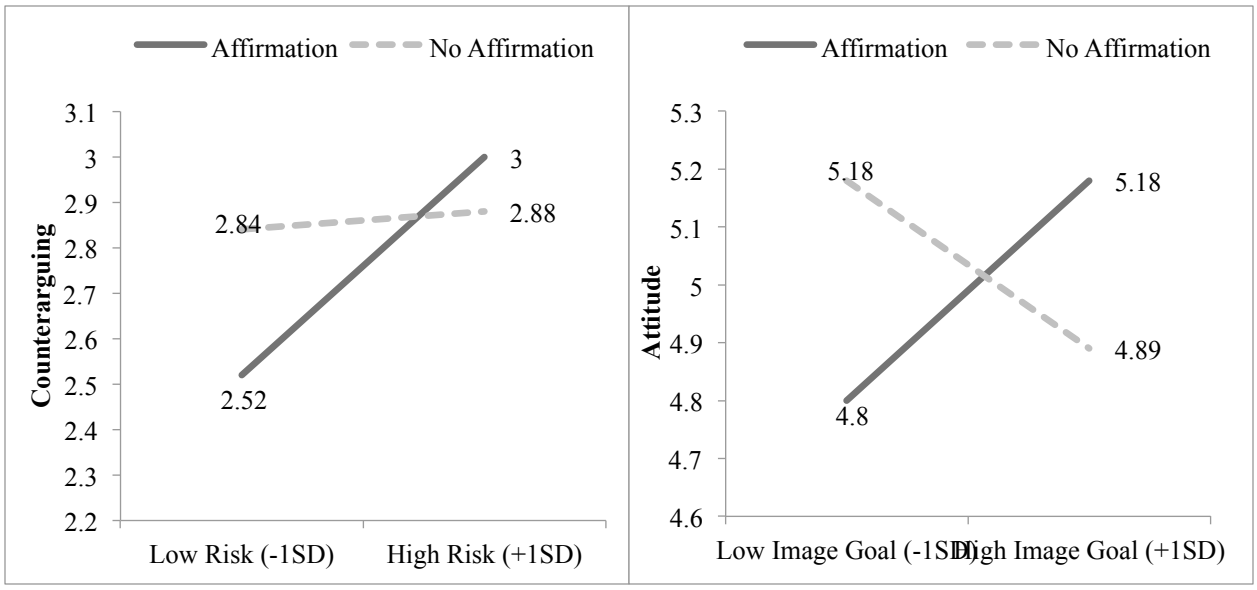
The influence of value-expressive messages in enhancing willingness also differed by recipients' goal to protect their public image, $F(1, 154) = 4.74$, p = .03. For those with higher image goal (+1*SD*), the self-direction value message significantly increased willingness to seek help (M = 4.86) compared to the health value message (M = 4.21, p = .03; vs. control, p = ns). There was no interaction on attitude. H6 thus partially supported.

Effects of self-affirmation. Addressing H7 and H8, I conducted a series of ANCOVAs on counterarguing and persuasive outcomes with self-affirmation condition, two threat sources, and their interaction terms (Figure 3.8). Self-affirmation moderated the effect of depression

susceptibility on counterarguing, $F(1, 242) = 4.02$, $p < .05$, but not on attitude or willingness to PHS ($p = .19$, $p = .66$, respectively). Counterarguing increased with higher depression susceptibility among affirmed individuals, ($\beta = .29$, $p = .005$), but not for non-affirmed individuals ($\beta = .02$, $p = .81$). For those with lower susceptibility (-1*SD*), self-affirmation reduced counterarguing ($M_{affirm} = 2.52$, $M_{control} = 2.84$, $p = .04$), rejecting H7.

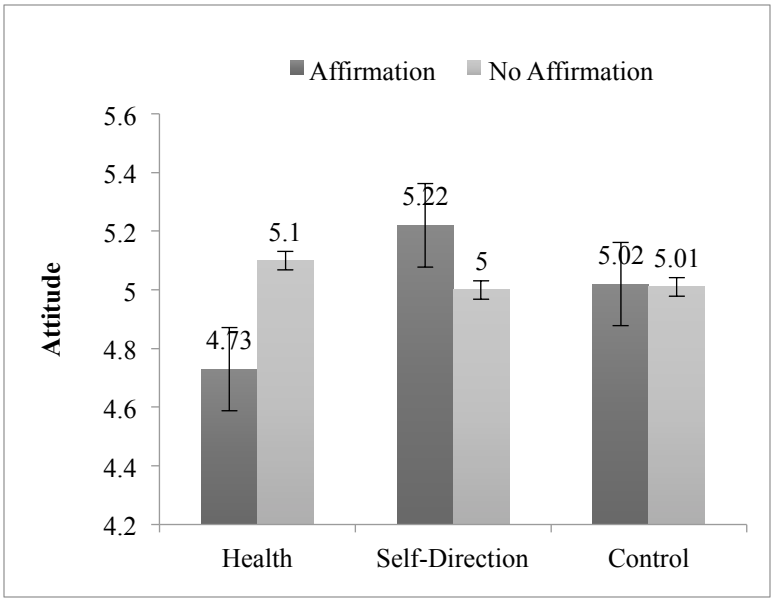
I found a significant affirmation-public image goal interaction on attitude, $F(1, 242) = 875$, $p = .003$, and willingness to PHS, $F(1, 242) = 4.79$, $p = .03$, but not on counterarguing ($p = .90$; H8a rejected). The goal to protect public image was positively associated with PHS attitude when self-affirmed, ($\beta = .22$, $p = .03$), while there was a negative relationship without affirmation ($\beta = -.17$, $p = .05$). For higher image goal individuals (+1*SD*), self-affirmation increased positive attitudes ($M_{affirm} = 5.18$, $M_{control} = 4.89$, $p = .04$, 1-tailed) and willingness to engage in PHS ($M_{affirm} = 4.85$, $M_{control} = 4.43$, $p = .04$, 1-tailed). The opposite pattern was found on attitude for lower image goal individuals, but not willingness (-1*SD*) ($M_{affirm} = 4.80$, $M_{control} = 5.18$, $p = .02$; willingness, $p = .17$). Thus, H8b was supported, but H8c was partially supported.

Figure 3.8. *Self-Affirmation Effect by Depression Susceptibility and Public Image Goal*



Interaction between affirmation and value-expressive messages. Addressing RQ4, I examined the interaction between value-expressive messages (without control message) and affirmation conditions on attitude. A two-way ANOVA revealed significant interaction on attitude, $F(1, 154) = 4.34$, $p = .04$, $\eta_p^2 = .03$. As presented in Figure 3.9, health ($M = 5.10$) and self-direction ($M = 5.00$) value messages did not differ on attitude when participants were not self-affirmed. However, when self-affirmed, self-direction message ($M_{self\text{-}direct} = 5.22$, $SD = .89$) led to significantly more positive attitude than the health value message ($M_{health} = 4.73$, $SD = .78$), $t(66) = -2.43$, $p = .02$. Although the control message was excluded in the interaction analysis, Figure 3.9 shows its results as a reference. There was no affirmation condition difference when participants read the control message.

Figure 3.9. *Attitude by Experimental Conditions*



General Discussion

Prevalent negative attitude and beliefs associated with mental treatment account for the reluctance of young adults to seek professional help when they experience depression (e.g.,

Schomerus et al., 2009). Studies in Chapter III sought to develop strategies with the potential to improve positive attitudes toward PHS. Study 3.1 first identified motivational bases for holding negative PHS attitude in relation to the target audiences' value structures. Along with the utilitarian function, the ego-defensive function was strongly associated with negative attitude toward PHS. Consistent with Study 3.1 result, pre-message PHS attitude was indeed served by the ego-defensive function in Study 3.3, which was positively associated with both depression susceptibility and motives for public image protection. These two factors also increased counterarguing of a message endorsing PHS (mediated via the ego-defensive function), indicating that 'the feared selves' of being unhealthy and stigmatized by others are potential reasons for taking an ego-defensive stance to PHS. As proposed in a conceptual model (Figure 3.4), the ego-defensive function also carried the influence of both private and public identity concerns onto negative attitude and normative beliefs about PHS. These results suggest that the ego-defensive attitude function has important implications for health persuasion.

The functional attitude approach emphasizes matching the persuasive appeal to the receiver's attitude function because it speaks to the person's psychological needs (Katz, 1960, Herek, 1986). Although the functional matching hypothesis has received extensive empirical support, no clear guidance has been offered on ways to address the ego-defensive attitude function. In light of Katz (1960), Study 3.3 tested the efficacy of self-affirmation and value-expressive message framing in overcoming ego-defensiveness that may originate from private and public identity concerns. Results suggest some boundary conditions to the positive effect of value-expressive framing and self-affirmation based on the origins and the strength of a self-threat.

The Utility of Value-Expressive Message Framing

Based on Hullett's (2002, 2004) conceptual work and the results of Study 3.1, Studies 3.2 and 3.3 utilized value-expressive messages framing PHS as consistent with the pursuit of either health or self-direction values. Value-expressive messages are thought to provide motivational insights for forming a positive attitude because value-expressive functions help clarify one's self-image (Katz, 1960). Value-expressive messages were thus designed to increase (in the case of health values) or create (in the case of self-direction values) the connection between topic relevant values and the attitude by advocating that recipients' existing goals to be healthy or self-directed are consistent with holding a positive PHS attitude. Pre-message attitude was positively associated with the motivational goals to be healthy and self-directed, suggesting that both health and self-direction values had reasonable connections to the recipients' value-expressive attitude.

In Study 3.3, value-expressive messages (particularly, the self-direction message) produced more positive PHS attitude among those with lower value-expressive attitudes. Furthermore, for those with higher value-expressive attitudes, value-expressive messages actually increased counterarguing compared to the value-free control message. These patterns suggest that emphasizing a value in a message can backfire for whom such value is already highly relevant to their PHS attitude perhaps because it reminds them about the possibility of not being healthy or self-directed due to depression. These patterns also indicate that the functional matching is not the mechanism to explain the positive effect of value-expressive message in this study. Rather, the result shows that the attitude functionality can be manipulated by persuasive messages. Value-expressiveness of PHS attitude can be increased by changing the perception that seeking help is a plausible means for accomplishing the goal to be healthy or self-directed for those previously did not consider these elements relevant to their PHS attitude.

There is a lack of attitude function research on the selection of values, in particular whether it is better to create a new value-attitude link or to strengthen an existing one. Study 3.3 results suggest potential utility of creating a new link in terms of addressing the ego-defensive attitude function. Framing PHS as a pursuit of the self-direction goal (creating a new link) enhanced supportive normative beliefs (vs. health value or control message) for those who considered protecting their public image important, which in turn allowed them more willing to seek help when they become depressed. In a previous study (Hullett, 2004), a message that framed sexually transmitted disease (STD) testing as being benevolent for audiences' partners (creating a new link) was more persuasive than a message that advocated the target behavior as consistent with the audiences' goal to be healthy (strengthening an existing link). Combined, attitude functionality may be best manipulated with value-expressive messages that provide recipients with an opportunity to reframe a health behavior in a way that enhances their positive self-image, particularly addressing public identity concerns. Future research should further investigate the mechanisms of positive value-expressive message effect to better understand the utility of the functional approach in health persuasion.

The Self-Affirmation Effect by the Origins and the Strength of Self-Threat

Self-affirmation is thought to help restore a global sense of self-integrity by providing alternative self-resources unrelated to the specific threat presented (Steele, 1988). Consistent with this proposition, among those who had a higher goal to protect their public image, self-affirmation decreased the need for self-defense thereby enhancing their positive attitude and willingness to seek help when depressed. Among non-affirmed individuals, post-message attitude decreased with increasing goal to protect one's own image, but not for self-affirmed individuals who had an opportunity to buffer potential self-threats.

Self-affirmation reduced counterarguing for those who perceived lower depression susceptibility, whereas at risk individuals were not influenced by the induction. While this finding contradicts the notion that people "at risk" are generally most defensive to health persuasion (Liberman & Chaiken, 1992), recent investigations suggest that self-affirmation reduces defensive responses only under a moderate self-threat (van Koningsbruggen, 2009; Klein & Harris, 2009). Because people develop cognitive strategies to rationalize their unhealthy behaviors, measured self-threat level based on past behaviors is considered a relatively "mild" threat (van Koningsbruggen, 2009). However, unlike a measure based on past behaviors, self-reported depression susceptibility may reflect an acknowledgment of one's own risk, thus posing a severe self-threat when one perceives to be at "higher-risk" (and a relatively moderate threat at "lower-risk"). When feeling highly vulnerable to depression, people may pay more careful attention to health information rather than rejecting it because reality constraints override their self-defense motives. The strongest self-defense may occur under the moderate self-threat (labeled "low-risk" in this study), which can be buffered by self-affirmation.

The effect of self-affirmation also differed by the values advocated in value-expressive messages. For those affirmed, self-direction value message produced more positive attitude than the health value message, whereas no condition difference observed without affirmation. Self-affirmation can backfire when combined with the health value message, decreasing audience's positive attitude toward PHS. However, it is unclear why affirmed individuals lowered their attitude only in response to the health value message. In persuasive settings that are not threatening to the self, research suggests that self-affirmation can increase esteem-based self-judgments (Klein & Monin, 2009) or confidence (Briñol, Petty, Gallardo, & DeMarree, 2007). The counterproductive effect of self-affirmation reported here may also be due to the lack of

self-threat in the health value message condition. Future work should explicitly test these potential explanations.

Limitations and Future Research

In light of the salient ego-defensive function found in Study 3.1, I examined two self-integrity concerns relevant to 'the feared self': the possibilities of 'not being healthy' as a private identity concern and 'viewed as unbalanced or neurotic by others' as a public identity concern. Although manipulating the level of self-threat would have provided stronger evidence for the study hypotheses, Studies 3.2 and 3.3 instead assessed participants' self-reported proxies of ego-defense motives. This approach was intended (1) to identify the origins of self-threat specific to the context of PHS and (2) to examine differing implications for health persuasion by their source of origin. Also, the topic of depression is a very sensitive health context to manipulate the threat level considering negative unintended effects it could have on participants.

Although investigating 'the feared self' shed some light on its role in health persuasion, there may be other important elements that require more attention from researchers to better understand the self-defense motives. In doing so, building a theoretical framework to systematically catalogue different origins of self-threat might be an important future direction. In light of the self-discrepancy theory (Higgins, 1987) and the notion of 'possible selves' (Markus & Nurius, 1986; Oyserman & Markus, 1990), important domains in the self-concept may differ by context thus requiring different intervention approaches. For instance, insecurities based on past unhealthy behaviors may reflect the discrepancy between ought (attributes believe you should possess) and actual selves (attributes you actually possess). The threat originated from the ought-actual self-discrepancy may result in different coping strategies than those based on future-oriented concerns like 'the feared self'. A person may reject the relevance of health

information as s/he assumes her/his own unhealthy behaviors are malleable in a future, making their ego-defensive function harder to intervene upon. Future work should explore different origins of self-defense and their implications for health persuasion.

Convenience samples of healthy college students were used to examine young adults' motivational bases of PHS attitude (Study 3.1) and to test health messages tailored to these target audiences (Study 3.2 and Study 3.3). Despite its exploratory nature, Study 3.1 results may not accurately represent the reasons for young adults' negative attitudes toward PHS. However, results are generally in line with previous studies in psychiatry that addressed beliefs associated with help-seeking for mental disorders (e.g., Wrigley et al., 2005; Komiti et al., 2006; Schomerus et al., 2009; Barney et al., 2006; Rickwood et al., 2007).

Messages tested in Study 3.2 and Study 3.3 may not have the same impact on clinically depressed individuals because they are likely to have different psychological needs and motivational bases for their attitudes toward PHS compared to mentally healthy young adults. Yet, research found similar attitude–intention relation among those with and without depressive symptoms (Schomerus et al., 2009); therefore testing health messages with healthy young adults is likely to influence their future help-seeking when they become depressed.

I measured theoretical constructs such as attitude functions and persuasive outcomes (attitude, willingness to engage in PHS, normative and self-efficacy beliefs) with multiple items derived from relevant literature. However, I assessed positive and negative cognitive responses to messages (counterarguing, message agreement, and perceived argument strength) with one or two measures, making these variables more susceptible for measurement errors. The inconsistency in study findings between message agreement and perceived argument strength (Study 3.2) and the insignificant paths between counterarguing and persuasive outcomes (Study

3.3) could be attributed to this limitation. To replicate findings reported here, future studies should consider employing thought-listing methods to assess the amount, valence, and nature of cognitions generated in response to a health message, which have been considered important determinants of persuasion (e.g. Petty & Cacioppo, 1986).

Conclusion

Studies in Chapter III contribute to the attitude function literature by providing a better understanding of the functional dynamics underlying persuasion in the context of PHS. Specifically, the current research explored ways to address the ego-defensive function and reports some boundary conditions to the positive effect of self-affirmation and value-expressive message framing. Investigating the motivational bases of PHS attitudes, the processes of function matching effect, and the origins and the influence of ego-defensive function in persuasion, the study findings also offer implications for health communication practice in endorsing PHS as an important means toward depression treatment.

CHAPTER IV: OVERCOMING SELF-DEFENSE WITH HEALTH NARRATIVES

Chapter Overview

Narratives have been widely used in public health campaigns based on their ability to model behavior and overcome resistance to persuasive advocacy (Strange, 2002; Strange & Leung, 1999). Narrative theorists recommend utilizing narrative approaches to address risky behaviors characterized by low levels of perceived vulnerability (Hinyard & Kreuter, 2007). Although risks are often perceived abstractly and as distant to people, exposure to a narrative that mirrors a person's direct experience may provide an opportunity to imagine oneself in the situation, relating the message to oneself and one's own life, thus increasing the salience of risk in the mind of audiences. To explain how this occurs, theorists suggest several narrative mechanisms in the literature including perceived similarity, identification with the character (Moyer-Gusé, 2008; Cohen, 2001), and self-referencing (Dunlop, Wakefield, & Kashima, 2010). These factors refer to the extent to which audiences internalize the story content and relate it to their own life. In a recent study, the reduction of perceived social distance to a narrative character as a result of these internalized responses explained how narrative impact personal risk perception (So & Nabi, 2013).

One unanswered question, however, is exactly how audiences generate these internalized responses to a health narrative and the processes through which those are transferred to personal risk perception, especially when the story contains counter-attitudinal elements to their positive self-conception. For instance, when smokers view anti-smoking public service announcements (PSA), they are likely to perceive personal relevance of the story. Yet, this may not necessarily transfer to their own perceived risk in light of research that suggests personal relevance can increase defensive responses to health messages (e.g., Liberman & Chaiken, 1992; Chen, Alden,

& He, 2010). At the same time, because people tend to distance themselves from an individual with negative attributes (Sestir & Green, 2010), smokers might refuse to identify with the negative character depicted as vulnerable to health consequences, as a form of defensive adaptation (Sherman & Cohen, 2006). To better understand the underlying mechanisms of narrative persuasion, and to better understand the potential for narratives to overcome ego-defensive motives to reject or discount salient health messages, it is thus important to address the active role played by the self in negative character engagement.

The current research proposes that an immersive form of mental processing involved in narrative reading can minimize above described defensive responses to health narratives. One of the greatest narrative advantages are their capability to invite audiences to walk in someone else's shoes by relaxing the boundaries of the self (Green & Brock, 2002). When audiences are immersed into the story world, their cognitive and emotional resources are caught up in understanding what's happening in the narrative (Green & Brock, 2000). This experience follows from the enjoyment associated with narrative reading such that narratives are enjoyable to the extent an audiences temporally leave their reality and vicariously experience narrative events as their own (Slater, 2002; Moyer-Gusé, Chung, & Jain, 2011; Oatley & Gholamain, 1997). Because this immersion conceptually involves the loss of self-awareness (Green & Brock, 2000; Csikszentmihalyi, 1990), audiences are likely to be removed from the self-focused state, which in turn should make them less motivated and less able to defend themselves from the self-threatening elements in a narrative.

In the context of study drug use among college students without a prescription, I describe two randomized experiments in Chapter IV designed to examine (1) factors that prompt more internal reading of a health narrative and (2) the conditions and the processes through which

these factors lead to changes in audiences' own perceived risk. Study 4.1 first examined how audiences connect to a health narrative and its character (self-referencing and identification) as a function of autobiographic similarity with the character and different perspectives through which a narrative is told (1st vs. 3rd person). Study 4.2 further examined these two factors with an addition of a processing motive manipulation (experiential vs. analytic) to investigate whether different mental processes involved in narrative reading promote more internalized responses to health narratives, which may translate into personal risk perception. Study 4.2 also addresses cognitive and affective pathways via which audiences integrate risk information in a narrative with their personal experience.

The Context: Study Drug Use among College Students without a Prescription

"Study drug" refers to prescribed medications for treating Attention Deficit Hyperactivity Disorder (ADHD) and narcolepsy, including Adderall, Ritalin, and Dexedrine, used without medical supervision by students in the belief that it improves academic performance. Non-medical ADHD stimulant use has been an increasing concern for college health professionals (DeSantis, Noar, & Webb, 2009). Although prevalence estimates vary by studies (as high as 34%, DeSantis et al., 2009), a national survey reports that 6.4% of full-time college students in the U.S. have used a 'study drug' at least once without a prescription (Survey on Drug Use and Health, 2009). Illicit use was highest among members of white fraternities at colleges in the Northeastern region of the U.S., especially those with more competitive admission standards (McCabe, Knight, Teter, & Wechsler, 2005).

The U.S. Drug Enforcement Administration (DEA) classifies ADHD stimulants as Schedule II[1] substances due to their potential for abuse and dependency. ADHD stimulants can cause medical issues such as sleep disorders, hyperactivity, jitters, headaches, and stomach

[1] According to U.S. law, "the highest abuse potential and dependence profile of all drugs that have medical utility."

problems. Overusing these drugs can lead to serious health consequences like heart problems, psychosis, and sudden death. However, college students tend to believe the illicit use as morally acceptable and physically harmless (DeSantis & Hane, 2010). The illicit ADHD stimulant use served as a study context because risks are specific to a particular behavior, associated risks are relatively unknown, and relevant-autobiographical memories are likely to vary among students. Also, it is an underrepresented health topic in communication research despite its prevalence and potential for serious health consequences.

Study 4.1. Connecting to the Audience's Self-Conception

Narrative persuasion has been conceptualized as "any representation of a sequence of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic addressed" (Kreuter et al., 2007, p. 222). Narrative impact on audiences' beliefs, attitudes, and behaviors depends on the extent to which they become involved with the narrative and its characters (Dal Cin, Zanna, & Fong, 2004; Slater & Rouner, 2002). Narrative theorists have offered perceived similarity and identification with a character portrayed as vulnerable to health risks as key mechanisms whereby narratives can change audiences' perceived risk vulnerability (Moyer-Gusé, 2008).

Autobiographic Similarity

Some researchers have conceptualized identification synonymously with perceived similarity (e.g., Hoffner & Cantor, 1991). Identification refers to narrative audience's cognitive and emotional experiences that take place by adopting the identity and perspective of a character (Cohen, 2001). Similarities in personality or demographic factors are generally considered to promote identification (Oatley, 1999; Hoffner & Buchanan, 2005). Similarity based on factors that are closely related to the basic conflicts, emotions, or situations experienced by the

characters are thought to be more influential than superficial ones (Green & Brock, 2002). Moyer-Gusé (2008) proposed that perceived similarity increases risk vulnerability because depiction of a similar character's vulnerability to a health risk is likely to remind audiences' of their own vulnerability, although this was not consistently supported in the authors' subsequent research (e.g., Moyer-Gusé & Nabi, 2010). Perceived similarity has been operationalized as attitude homophily – the extent to which a character acts, thinks, and behaves like the audience (McCroskey, Richmond, & Daly, 1975). The concept of attitude homophily may not accurately capture character traits that audiences identify as similar to themselves when processing health narratives.

Study 4.1 proposes an alternative way of thinking about how an audience identifies with or perceives similarity to a story character—that they share some aspect of a common history related to the risk in question, an autobiographic similarity. Autobiographic similarity is conceptualized as an audience's past psychological or behavioral engagement in a particular risky behavior performed by the main story character. In the context of illicit study drug use, being tempted to use or actually has used study drugs for non-medical purposes can be considered as story-congruent autobiographic memories. Traits perceived as primary to the character are more likely to be activated in the audience's self-concept increasing the likelihood of character identification (Sestir & Green, 2010). Because the causal relationship between negative health behaviors and their consequences is the key to health narratives (Strange & Leung, 1999; Kreuter et al., 2007), autobiographic similarity is likely to be an important audience characteristic in processing health narratives.

Self-referencing is the cognitive processes that occur when incoming information is understood by comparing it to self-relevant information stored in memory (Debevec & Romeo

1992). When processing a narrative, mental simulation takes place by re-experiencing or re-constructing past events based on audiences' autobiographical memories (Taylor & Schneider 1989; Krishnamurthy & Sujan, 1999). Autobiographical similarity may provide mental imagery resources for the audiences making it easier to imagine the self in the narrative or to share the character's perspective (Green & Brock, 2002; Green, 2004). With similar autobiographic memories of engaging in a risky behavior, audiences can draw on own past experiences to understand the feelings and the situations of the character and perceive the story's relevance to their own life. Thus, the first hypothesis posits:

Hypothesis 1 (H1): Similar autobiographic history will be associated with higher levels of (a) self-referencing and (b) identification with the character.

Narrative Perspective

Narrative perspective (or voice) is a fundamental story feature that determines the way through which the story is communicated to audiences. Studies of narrative persuasion have used stories written either in the first-person (a character tells from his/her point of view, e.g., Green, 2004, Slater & Rouner, 1996) or the third-person perspectives (an external observer serves as a narrator, e.g., Green & Brock, 2000). Yet, little is known about whether narrative perspective changes the ways audience connects themselves to the story or its character such as self-referencing or identification. The primary perspective often taken by narrative audience is a "hypothetical-observer-of-fact" (Goldman, 2006, p.287), a distant way of witnessing story events as an external observer. Yet, in a study, narrating through the main character's perspective facilitated more identification than the story told from the perspective of another character (De Graaf, Hoeken, Sanders, & Beentjes, 2011). Compared to third-person narration, those who read a story written in the first-person voice were more likely to simulate the subjective experience of

a character as their own when the story depicted an in-group character (Kaufman & Libby, 2012).

Self-referencing has been successfully induced by using different pronouns in advertising messages. That is, the second-person pronoun ("you") facilitates more self-referencing than the third-person pronouns ("one") (Escalas, 2007, Burnkrant & Unnava, 1995). Because health narratives are a more implicit persuasion than consumer advertisements, the victim's perspective ("I") is likely more relevant than explicitly directing audiences to a self-reference ("you"). Even without explicit reference to the audiences, when engaged in a narrative the first-person account ("I") may facilitate self-referencing and invite audiences to take the character's perspective than third-person narratives. Thus, the second hypothesis posits:

> *Hypothesis 2 (H2):* Compared to third-person narration, first-person narration will be associated with higher levels of (a) self-referencing and (b) identification with the character.

Method

Participants and procedure. A randomized between-subject experiment was conducted with a story depicting a character vulnerable to harmful consequences of using study drugs (e.g., Ritalin and Adderall) without a prescription. College students (n = 135) were recruited from communication and psychology courses in exchange for extra credit. Participants were provided with a link to an experiment administered on the Internet. Respondents consisted of 64% women and their age varied from 18 to 28 (M = 20, SD = 1.42). More than half identified as White (57%) followed by Asian (29%). Thirty percent were freshmen, 24% were sophomores, and 27% were juniors. Participants were randomly assigned to read one of two story versions written in different pronouns (explained below) and reported their level of identification with the character,

self-referencing, autobiographic similarity, and basic demographic information. See Appendix 4A-1 for the actual questionnaire.

Stimulus material. Two versions of narrative stories were written based on newspaper reports on study drug usage among college students (e.g., Close, 2012, ABC News, 2005). The two narratives used different perspectives through which a narrative is told by using different pronouns (first-person "I", $n = 66$ vs. third-person "Maggie", $n = 68$), while both depicted a character experiencing negative consequences of taking study drugs without a prescription. The story character, Maggie, wakes up on an emergency room gurney after taking Adderall without a prescription and collapsing in her dorm bathroom. In the hospital, she recalls her dependency on the study drug and side effects that she has experienced (e.g., having the jitters and trouble falling asleep). Maggie's story concludes with her being concerned about her parents and others finding out what she did. See Appendix 4B for full text of all study conditions.

Identification. Cohen's (2001) 10-items scale was used. Items included, while reading the story "I could feel the emotions the character portrayed" and "I wanted the character to succeed in achieving his or her goals" (1 = not at all, 7 = very much). Ten items were reliable measures of identification ($\alpha = .92$); they were averaged into an identification scale ($M = 4.04$, $SD = 1.22$).

Self-referencing. Four items measured self-referencing (Burnkrant & Unnava, 1995; 1 = not at all, 5 = a great deal): "how much did this story make you think about you and your experiences?", "how much did you think about what it would be like if the events shown in the story happened to you?", "to what extent did you think the story related to you personally?", and "to what extent were you reminded of your experiences while viewing the story?" Items were averaged into a self-referencing scale ($\alpha = .84$, $M = 3.57$, $SD = 1.35$).

Autobiographic similarity. Participants reported their experiences relevant to the use of study drugs: having a prescription for an ADHD drug (yes or no), how often they have used or been tempted to use ADHD drugs (1 = never, 5 = very often), and knowing someone who has ADHD drugs or heard/seen others using such drugs (1 = none, 5 = many people). Participants also reported whether they ever had a medical problem associated with ADHD drugs (0 = none, 1 = minor, 5 = major).

Of the respondents, 10% (n = 13) had a prescription for an ADHD drug and 4% (n = 5) experienced some medical problem due to ADHD drugs. 17% reported using ADHD drugs rarely (n = 23) and sometimes or very often by 7% (n = 10). More than half were aware of those who have ADHD drugs (68%) and have seen or heard of others using (66%). Based on this study's conceptualization (i.e., an audience's past psychological or behavioral engagement in a risky behavior), I created an index of autobiographic similarity by averaging two items: how often audiences had used or tempted to use study drugs (r = .65, M = 1.64, SD = .89). Then, I created a binary index to categorize individuals into two groups. Those who had never used or never been tempted to use study drugs were categorized as low autobiographic similarity (n = 71, 52.6%) and the rest as high similarity group (n = 64). The binary index was used in the subsequent analyses.

Results

Effects of autobiographic similarity and narrative perspective. Independent samples t-tests compared autobiographic similarity groups (H1) and narrative perspective conditions (H2) on self-referencing and identification. Supporting H1a, those with similar autobiographic memories reported significantly higher self-referencing (M = 4.00, SE = .18) than those with

lower autobiographic similarity (M = 3.18, SE = .14), $t(133) = -3.67$, $p < .001$. But, identification did not differ as a function of audiences' similarity, t = -.04, p = .97 (rejecting H1b).

Those who read a narrative written in the 1st person voice rated significantly higher self-referencing (M = 3.83, SE = .16) than those exposed to 3rd person narration (M = 3.32, SD = .16), $t(133) = 2.22$, p = .03. Identification did not differ by narrative perspective conditions, t = .83, p = .41. Thus, H2a was supported and H2b was not supported.

Discussion

Study 4.1 examined whether first-person narration and autobiographic similarity with the narrative character facilitate more internal reading of a health narrative. Different pronouns in advertising messages ("you" vs. "one") have been found to change the level of self-referencing (Burnkrant & Unnava, 1995). Also, first-person narratives are thought to produce a more immediate sense of closeness to the story character (Kaufman & Libby, 2012). Consistent with this notion, Study 4.1 found that a mere change in narrative voice ("I" vs. "Maggie") has an impact on the extent to which audiences self-reference the story content. Compared to an external observer serving as a narrator, narrating through the victim's point of view was more effective at facilitating self-related thoughts and reminding audiences' past experiences. Having story-congruent autobiographic memories also increased self-referencing, suggesting that audiences draw on their own past experiences when processing a story (Larsen & Seilman, 1988; Taylor & Schneider 1989; Krishnamurthy & Sujan, 1999).

First-person narration and autobiographic similarity were also expected to enable audiences to better understand the characters' feelings and their situations through identification. No such association was found. In a study, first-person narratives depicting a character who shares a group membership with the participant were more likely to induce audiences to take the

character's subjective experiences as their own than third-person narratives (Kaufman & Libby, 2012). Yet, this study found no difference when the story depicted an out-group member. The null finding for identification may be attributed to the fact that the story depicted a negative character who could be considered as an out-group member by participants. Study 4.2 investigates this possibility with the manipulation of different mental processes involved when one encounters a health narrative (experiential versus analytical); the experiential engagement may be able to reduce audiences' psychological distancing from the negative character as they are likely to be removed from the self-focused state (further explained in Study 4.2).

If narrative perspective or autobiographic similarity influences the way how audiences relate themselves to a health narrative or its characters, it could also change audiences' perceived vulnerability to a health risk depicted in the story. Study 4.2 addresses boundary conditions when this is most likely to occur in relation to defensive responses to a health narrative. Specifically, Study 4.2 examines whether a more immersive form of mental processing aid audiences overcome their self-defensive motives, thereby reducing distance from the negative character and experiencing the story as their own. Cognitive and affective mechanisms are examined to better understand the processes through which narrative audiences learn about their personal risk.

Study 4.2. Pathways to Recognize Personal Risk through Narrative Experience

To explain the relative efficacy of narrative persuasion, theorists have addressed different mental processes involved when one encounters a narrative that is distinguished from processing an argument (Green & Brock, 2000; Slater & Rouner, 2002). Bruner (1986) suggested the standard of truth as the key distinction between stories and nonstories. That is, argument appeals with proof and evidence, whereas stories establish with the appearance of being true or real. When presented with a narrative, individuals often passively accept the stories' themes or facts

because they are not motivated to process information in a critical manner as it interrupts their enjoyable narrative reading (Oatley & Gholamain, 1997).

Researchers often consider the narrative form to serve as a cue to processing information in a relatively uncritical manner, but in a more immersive form of mental processing (Green, Garst, & Brock, 2004). This immersive state is often called transportation, an experience of being caught up in the story with "an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p.701). However, some research has reported no difference in the level of transportation between advocacy and narrative messages (e.g., Braverman, 2008, Dunlop et al., 2010). One possibility is that the extent to which audiences experience transportation depends on their processing motive that serves his/her psychological needs rather than a message format.

Two Processing Motives: Experiential vs. Analytic Engagement

In light of the Cognitive Experiential Self-Theory (CEST; Epstein, 1994), there are potentially two processing motives that may be involved when one encounters a health narrative: the analytical motive and the experiential motive. The analytical motive encourages an individual to process information in a critical manner based on the rules of logical inference with the evidence provided, whereas the experiential motive encourages individuals to vicariously experience narrative events as their own. Although the experiential motive is likely to be the predominant mode of reading a narrative, the analytical motive can also be activated when a story contains counter-attitudinal elements for the audience's beliefs or self-conception. When an individual is in the experiential mindset, self-awareness is likely to be reduced as s/he is less conscious about the mediated nature of their experience, and his/her attention is focused on narrative events (Green & Brock, 2002; Klimmt & Vorderer, 2003). Audiences in the analytical mindset should be less transported as their cognitive resources are committed to the elaboration

of (implicit) advocacy (Green, 2004; Escalas, 2007) and perhaps self-threatening elements in health narratives. Although both experiential and analytic system should jointly operate to guide risk decision-making (Slovic, Finucane, Peters, & MacGregor, 2004), information derived based on (vicarious) experience should be more influential (Epstein, 1994). Thus, I propose a hypothesis to examine the effects of different processing motives on producing transportation, which in turn should lead to changes in perceived risk.

Hypothesis 3 (H3): Compared to the analytical motive, the experiential motive will be associated with (a) a higher level of transportation, which in turn will be associated with (b) increased perceived risk.

Several studies indicate that narrative impact on attitudes and real-world beliefs, including perceived risk, depends on the extent to which audiences become transported into the narrative world (Green & Brock, 2000; Dunlop et al., 2010). Transported individuals are less likely to attend to persuasive intent that underlies a message and thus produce fewer negative cognitive responses to a message that contains counter-attitudinal elements (Slater & Rouner, 1996; Green & Brock, 2000). In health context, a message that suggests one's own vulnerability can be perceived of counter-attitudinal to his/her positive self-image. Transportation, induced by the experiential motive, may be able to reduce attention to self-threatening elements in a health narrative, thus reducing biased processing, a form of defensive adaptation that involves downplaying the story value or intent.

At the same time, transported audiences are thought to experience strong emotions and motivations related to the narrative events (Green & Brock, 2000). Negative anticipated affect refers to the prospect of feeling negative emotions after performing a risky behavior (Rivis, Sheeran, & Armitage, 2009). Negative anticipated affect has been associated with increased risk

awareness, which makes individuals to become more risk-averse and determined to avoid those risks (Richard, van der Pligt, & de Vries, 1996). Vicariously experiencing the negative emotions depicted in a narrative, transported individuals should be able to better prospect how it would feel like for them to have the consequences of a risky behavior. In a study, transportation increased audiences' emotional responding to a narrative, which in turn made them feeling at risk (Dunlop et al., 2010). Combined, this suggests a mediation hypothesis to examine two processes through which transportation changes personal risk perception.

Hypothesis 4 (H4): (a) Reduction in biased processing and (b) increase in negative anticipated affect will explain the effect of transportation on perceived risk.

The Role of Self-Referencing and Identification

Some narrative theorists suggest constructs such as perceived similarity, identification, and self-referencing as key mechanisms through which individuals learn about their own risk vulnerability via narrative experience (e.g., Moyer-Gusé, 2008; Moyer-Gusé et al., 2011; Dunlop et al., 2010; Escalas, 2007). However, little is known when and how audiences produce these personalized responses to a health narrative and the process by which those are transferred to personal risk perception. So and Nabi (2013) suggested the reduction of perceived social distance to a narrative character to explain how story personalization change perceived risk.

One potentially important element neglected in the narrative persuasion literature is the audiences' motivation to distance themselves from the negative character depicted as vulnerable to health risks. In Study 4.1, the extent to which audiences took the perspective of a narrative character (i.e., identification) did not differ by narrative perspectives, even though first-person narration is thought to produce a more immediate sense of closeness to a character. Kaufman and Libby (2012) found that first-person narratives enable audiences to take the character's

subjective experiences as their own than third-person narratives only when the character is perceived as an in-group member. If the null finding in Study 4.1 was due to audiences' psychological distancing from the negative character (perceiving as an out-group), then audiences prompted with the experiential motive to process a narrative should be able to identify more with the negative character who narrates through his/her own voice as they are less likely to be in a self-focused state. Identification also involves the loss of self-awareness as individuals vicariously experience the actions and emotions of a character by shifting own identity (Cohen, 2001). Identification (induced by 1st person combined with the experiential motive) should in turn reduce biased processing of a narrative message. Thus, I propose the following hypotheses:

Hypothesis 5 (H5): Compared to third-person narration, first-person narration will be associated with a higher level of identification under the experiential motive, but not under the analytical motive.

Hypothesis 6 (H6): Identification will carry the interactive effect between narrative perspective and processing motive onto biased processing.

In Study 4.1., self-referencing increased by both first-person narration (versus third person) and autobiographic similarity. Because narrative reading increases audiences' retrospective self-referencing reminding themselves about own past experiences (Larsen & Seilman, 1988), the experiential motive should also be associated with increased self-referencing than when audiences in an analytical mode. When audiences self-reference a health narrative, they may be reminded of both positive and negative memories relevant to the story theme. Because thinking about negative past experiences are often challenging to accept (Weinstein, Deci, & Ryan, 2011), it is when predominantly negative memories were derived (from self-referencing a narrative) that becomes threatening to audiences, thus resulting in a biased

processing. This defensiveness would, in turn, make individuals to deny their own risk susceptibility. Consistent with this notion, self-referencing has been associated with defensive reactions among those who perceived personal relevance of health information (Chen et al., 2010). Combined, I offer two hypotheses to examine the effect of processing motive on self-referencing, which in turn may have a conditional effect on biased processing by autobiographic similarity to a negative character.

Hypothesis 7 (H7): Compared to the analytical motive, the experiential motive will be associated with a higher level of self-referencing.

Hypothesis 8 (H8): Self-referencing will be (a) positively associated with biased processing among high autobiographic similarity, but (b) negatively among those with lower similarity.

Method

Participants and procedure. A 2 (processing motive: experiential vs. analytic) x 2 (narrative perspective: 1st person vs. 3rd person) between-subjects experiment was administered on the Internet with the same narrative messages used in Study 4.1. In exchange for extra credit, student participants (n = 228) were recruited and randomly assigned to one of four conditions. Participants were asked to read a short narrative with a specific processing motive instruction (explained below). Along with basic demographic information, the post-questionnaire included transportation, identification, self-referencing, and autobiographic history. In addition, perceived risk vulnerability, biased processing, and negative anticipated affect were measured. See Appendix 4A-2 for the full questionnaire items used in the experiment.

Of the respondents, 77% were women and 66% self-identified as White. Respondent age ranged from 18 to 44 (M = 19.59, SD = 2.01). Twenty-one percent were freshmen, 40% were

sophomores, and 25% were juniors. Nine percent had a prescription for an ADHD stimulant and 4% experienced some medical issue associated with ADHD medications. The majority (80%) reported that they had never used ADHD drugs and more than half (58%) had never been tempted to use the study drug. Consistent with Study 4.1, an index of autobiographic similarity was created with two measures (r = .68, p < .001, M = 1.60, SD = .94) and participants were grouped into either high (n = 96, 42%) or low (n = 129, 58%) similarity group.

Processing motive: Experiential vs. analytic. Guided by studies that manipulated different mental processes involved in narrative reading (e.g., Sestir & Green, 2010, Green & Brock, 2000, Green, 2004), pre-reading instructions were used. The experiential condition was intended to get participants absorbed into the story to increase the likelihood of vicarious experience, whereas the analytic condition was designed to motivate participants to critically process the story content. In the experiential condition (n = 116), participants were instructed to put themselves into the story by "focusing on the events as if you were inside the story itself." For the analytical condition (n = 112), participants were asked to "think carefully about the arguments, statements and beliefs the characters and settings seem to depict".

Identification and self-referencing. The same measures were used as Study 4.1 to assess identification (α = .91, M = 4.23, SD = 1.16) and self-referencing (α = .89, M = 3.67, SD = 1.54).

Transportation. The level of transportation was measured with a 12-item scale derived from Green and Brock (2000). Participants indicated the extent to which they agreed or disagreed with each statement (1 = not at all, 7 = very much), for instance, "I was mentally involved in the story while reading it", "I could picture myself in the scene of the events shown in the story". Responses were averaged into a transportation scale (α = .68, M = 4.16, SD = .76).

Biased processing. I used nine items validated by a content analysis of negative cognitive responses to persuasion (Witte, 1992) to assess the level of biased processing. On a 5-point Likert scale (1= strongly disagree, 5 = strongly agree), participants indicated the extent to which they thought the story was boring, overstated, exaggerated, distorted, untrue, overblown, not very truthful, tried to manipulate their feelings or exploit them ($\alpha = .86$, $M = 2.61$, $SD = .62$).

Anticipated affect. Participants reported on 11 items gauging how they would expect to feel if they were to take study drugs without a prescription (Rivis et al., 2009): Regret, guilty, gloomy, scared, paranoid, weary, embarrassed, frustrated, anxious, fearful, and panic ($\alpha = .94$, $M = 3.39$, $SD = .94$).

Perceived risk. Participants estimated their perceived chance of experiencing health consequences depicted in the story if they were to take ADHD drugs without a prescription (1 = almost zero to 7 = almost certain, Weinstein et al., 2007). Also, feeling at risk was assessed with two items: "If I take performance enhancing drugs without a prescription, I would feel [that I'm going; very vulnerable] to experience health consequences as depicted in the story" (1 = strongly disagree; 7 = strongly agree). Three items were averaged to create a perceived risk scale ($\alpha = .89$, $M = 4.51$, $SD = 1.42$).

Analytic approach. To replicate the findings of Study 4.1, a series of independent samples t-tests first compared between autobiographic similarity groups (H1) and narrative perspective conditions (H2) on self-referencing and identification. Independent samples t-tests also compared between processing motive conditions on transportation (H3a), perceived risk (H3b) and self-referencing (H7). In addition, to examine whether the effect of processing motives is contingent on narrative perspective or autobiographic similarity or both, a series of two-way and three-way analyses of variance (ANOVAs) tested their interactions on

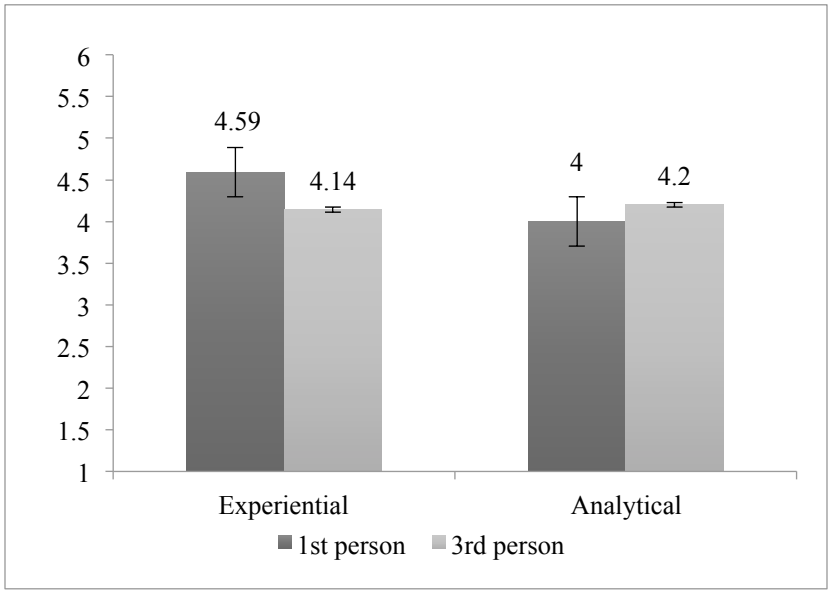
transportation and perceived risk. To test H5, a two-way ANOVA was used with perspective conditions, processing motives, and their interaction terms on identification. The interaction between self-referencing and autobiographic similarity on biased processing was also examined with a two-way ANOVA (H8). To examine the mediation hypotheses (H3, H4, and H6), this study used the PROCESS macro for SPSS (Preacher & Hayes, 2008). Path coefficients and bootstrap bias corrected confidence intervals (CI; 5,000 samples) were estimated in mediator models.

Results

Effects of autobiographic similarity (H1). Compared to low autobiographic similarity, those who categorized in the high similarity group were significantly more likely to self-reference the story ($M = 4.20$; $M_{low} = 3.27$, $p < .001$) and identify with the character ($M = 4.54$; $M_{low} = 3.99$, $p < .001$), supporting H1a and H1b. In addition, autobiographic similarity significantly increased biased processing ($M = 2.77$; $M_{low} = 2.53$, $p = .003$), while it reduced negative anticipated affect ($M = 2.93$; $M_{low} = 3.65$, $p < .001$) and perceived risk ($M = 3.89$; $M_{low} = 4.97$, $p < .001$).

Effects of narrative perspective (H2 & H5). Rejecting H2a and H2b, narrative perspective had no main effect on self-referencing ($p = .41$) or identification ($p = .40$). However, as hypothesized in Study 4.2, a significant interaction was found between narrative perspective and processing motive on identification, $F(3, 228) = 4.53$, $p = .03$, $\eta_p^2 = .02$. Supporting H5 (Figure 4.1), participants identified more with the character in the 1st person narrative ($M = 4.59$; vs. $M_{3rd} = 4.14$, $p = .03$) under the experiential mode, while there was no significant condition difference under the analytical mode ($M_{1st} = 4.00$, $M_{3rd} = 4.20$, $p = .38$). There was no interaction on self-referencing.

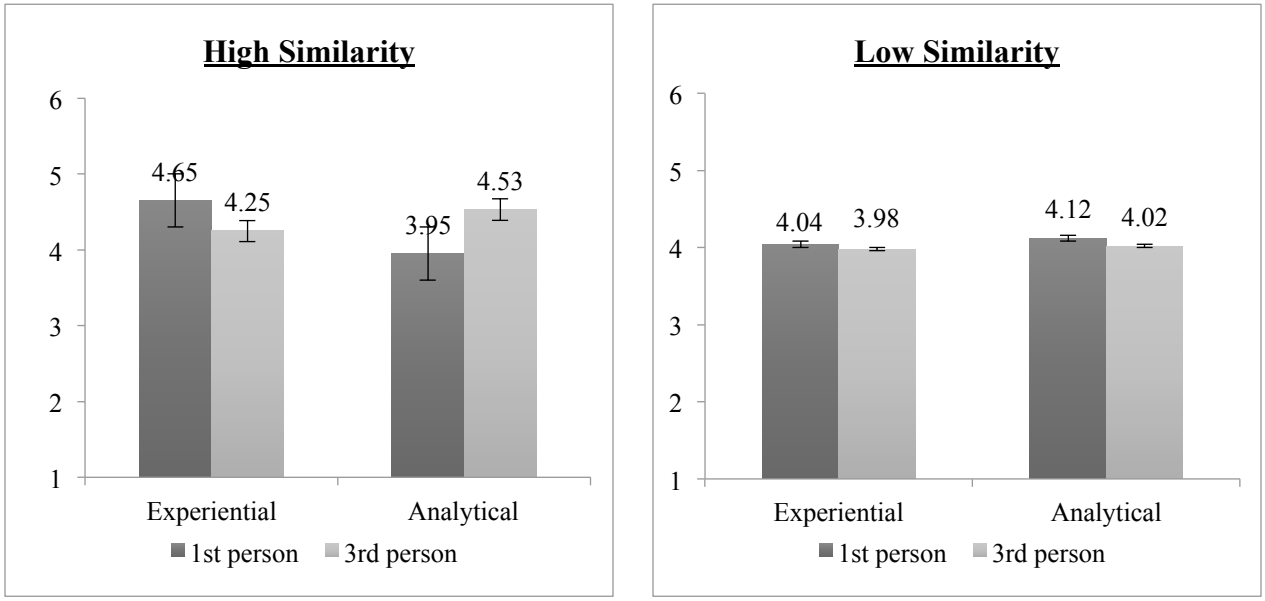
Figure 4.1. *Identification by Experimental Conditions*



Effects of processing motive (H3). Compared to the analytical motive, the experiential motive was hypothesized to produce higher transportation, which also lead to higher perceived risk (H3). However, neither transportation ($p = .75$) nor perceived risk ($p = .76$) differed by processing motive conditions (H3 rejected). Despite no main effect on transportation, processing motive interacted with narrative perspective conditions, $F\ (3, 228) = 4.28$, $p = .04$, $\eta_p^2 = .02$. In addition, a significant 3-way interaction was found between two experimental conditions and autobiographic similarity on transportation, $F\ (7, 225) = 6.27$, $p = .01$, $\eta_p^2 = .03$.

As shown in Figure 4.2, the interaction between processing motive and narrative perspective was significant only in the high autobiographic similarity group such that the 1st person narrative produced significantly higher transportation ($M = 4.65$) than 3rd person narrative ($M = 4.25$) under the experiential mode, $t = 2.19$, $p = .03$. The opposite pattern was found in the analytical mode ($M_{1st} = 3.95$, $M_{3rd} = 4.53$), $t = -2.27$, $p = .03$.

Figure 4.2. *Transportation by Experimental Conditions and Autobiographic Similarity*

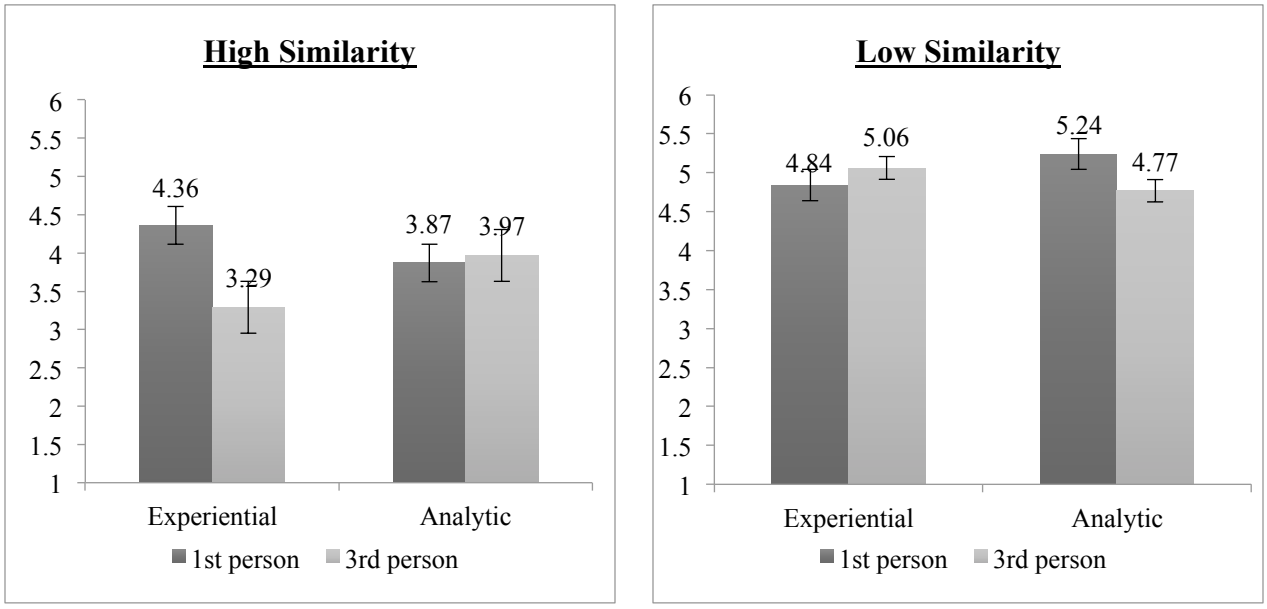


Although no main effect was found on perceived risk, processing motive interacted with autobiographic similarity, F (3, 228) = 4.28, p = .04, η_p^2 = .02. A significant 3-way interaction was also found on perceived risk (consistent with transportation), F (7, 225) = 6.76, p = .01, η_p^2 = .03. As shown in Figure 4.3, among those with similar autobiographic history, 1st person narration produced significantly higher perceived risk (M = 4.36) than the 3rd person narrative (M = 3.29) under the experiential mode (t = 2.45, p = .02), but no difference observed under the analytical mode. In the low autobiographic history group, narrative perspective did not make a difference under any processing motives (e.g., analytic mode, low similarity: M_{1st} = 5.24 vs. M_{3rd} = 4.77 p = .15).

To examine whether the perceived risk difference observed in the high similarity group can be explained by level of transportation (H3), mediation was tested with the PROCESS macro. The residual direct effect of 3-way interaction became smaller (although still statistically significant) (B = -1.48, p = .04) when controlling for the effect of transportation (B = .36, p =

.002). The 95% CIs for the overall indirect effect of transportation (B = -.36, CI = -.87 to -.08) did not include zero, suggesting that transportation is a significant partial mediator that carries a portion of the interactive effects between experimental conditions and autobiographic similarity onto perceived risk. In particular, the conditional indirect effect via transportation was significant among high similarity individuals who read 1st person narration (B = .25, CI = .08 to .53).

Figure 4.3. *Perceived Risk by Experimental Conditions and Autobiographic Similarity*



From transportation to perceived risk (H4). Having confirmed that transportation significantly increased perceived risk (mediating interactive effects), specific mechanisms were examined addressing H4. Preliminary analyses found significant associations between perceived risk and two proposed mechanisms (biased processing, B = -.61; anticipated affect, B = .84, both $p < .001$); thus both factors were entered as potential mediators in the PROCESS macro. Transportation significantly reduced biased processing (B = -.21, $p < .001$), whereas it significantly increased anticipated affect, B = .15, $p < .05$). The total indirect effect was significant (B = .26, CI = .10 to .43), and both biased processing (B = .13, CI = .05 to .24) and

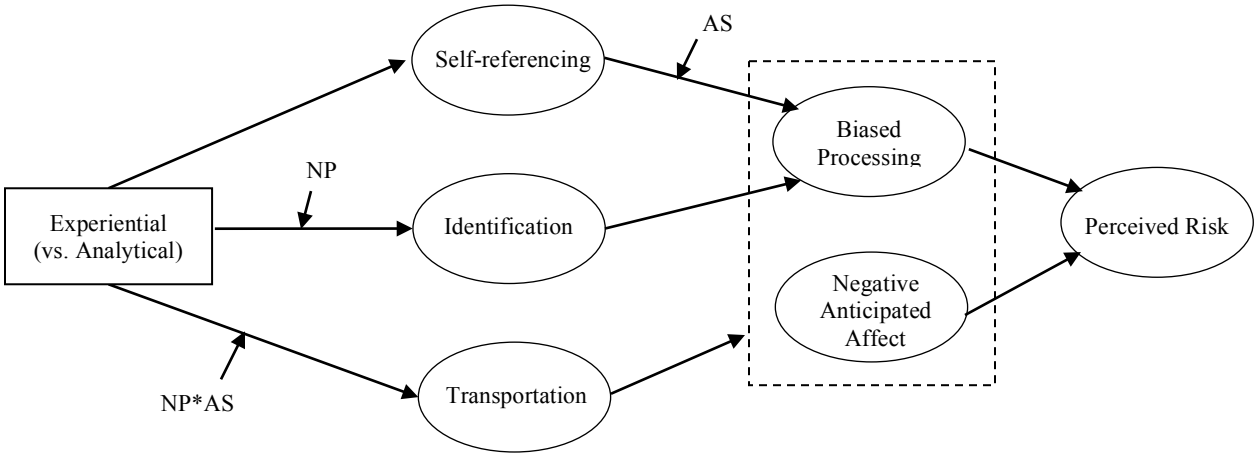
anticipated affect (*B* = .13*,* CI = .01 to .26) emerged as significant mediators between transportation and perceived risk. When both mediators were entered in a model predicting perceived risk, the effect of transportation became insignificant (*B* = -.02, *p* = .87), indicating a full mediation.

Mediation of identification (H6). Consistent with Study 4.1, narrative perspective had no main effect on identification. However, as reported above (addressing H5), first-person narration produced significantly higher identification (versus third-person) under the experiential motive. Using the PROCESS macro, identification was found to carry this interactive effect onto biased processing. Supporting H6, identification significantly reduced biased processing (*B* = -.07, *p* = .04) and the conditional indirect effect via identification was significant only among those who read first-person narration (*B* = -.05, CI = -.13 to -.003). Identification had no direct association with perceived risk (*B* = .03, *p* = .81).

Mediation of self-referencing (H7 & H8). As hypothesized, self-referencing changed by processing motive (H7 supported); the experiential motive (*M* = 3.87, *SD* = 1.56) produced significantly higher self-referencing than the analytical motive (*M* = 3.46, *SD* = 1.50), *t* (225) = -2.03, *p* = .04. Supporting H8, the effect of self-referencing on biased processing marginally differed between autobiographic similarity groups, *F* (3, 225) = 3.36, *p* = .07, η_p^2 = .02, such that self-referencing reduced biased processing among those lack autobiographic similarity (β = -.24, *p* = .007), whereas no association observed among those with higher autobiographic similarity (*p* = .81). Using the PROCESS macro to test a mediation, the effect of experiential motive on self-referencing, in turn reduced biased processing only among those who lack similar autobiographic similarity (the conditional indirect effect, *B* = -.04, CI = -.11 to -.003). Self-referencing (*B* = -.05, *p* = .48) had no direct association with perceived risk.

Figure 4.4 summarizes Study 4.2 results in a conceptual model explaining pathways to change audiences' perceived risk through narrative experience.

Figure 4.4. Summary of Study 4.2 Results



Notes. NP = narrative perspective; AS = autobiographic similarity; arrows directed on the path denotes moderation.

General Discussion

Media depictions of risk tend to influence people's risk judgment only at the societal level, but not at the personal level (Tyler & Cook, 1984) in part because people tend to think that negative events won't happen to them (Weinstein, 1980). One possible way to get people to recognize their vulnerability is to elicit personalized responses by making risk information highly self-relevant (Houser-Marko & Sheldon, 2006). Theorists suggest several narrative mechanisms that could provide audiences with vicarious experience that closely resembles their own. In health context, however, it has been unclear when narrative audiences generate these personalized responses to a health narrative, especially when the story contains counter-attitudinal elements to their positive self-conception. Chapter IV thus explored factors that may

generate personalized responses to health narratives and the conditions by which those may be transferred to personal risk perception.

The Role of Autobiographic Similarity in Narrative Persuasion

In light of the notion that audiences mentally simulate a story based on their own autobiographical memories (Taylor & Schneider 1989; Krishnamurthy & Sujan, 1999), Chapter IV proposed an alternative conception of how an audience identifies or perceives similarity to a story character in health narratives—an autobiographic similarity. With similar autobiographic memories of engaging in a risky behavior, audiences were more likely to self-reference the story content and to identify with the narrative character (Study 4.2). Story-congruent memories may provide mental imagery resources for the audiences allowing them to better understand the characters' feelings and their situations and to relate the story content to themselves.

However, those with similar autobiographic memories had less anticipated negative affect and considered themselves less likely to experience negative consequences depicted in the story. Autobiographic similarity also increased biased processing of a health narrative. There was some indication that autobiographic similarity moderates the relationship between self-referencing and biased processing. Self-referencing reduced biased processing among those who lack relevant autobiographic memories, whereas there was no association for those with higher autobiographic similarity. Self-referencing is generally associated with unbiased and objective information processing (Sedikides & Green, 2000). Yet, when the information has negative implications for the audience's self-concept, people are motivated to resolve the inconsistency between such information and previously held (positive) beliefs about the self by processing information in a biased manner. Self-referencing in the low similarity reduced biased processing perhaps because they were reminded of the fact that they had never been tempted to use or had

used study drugs. On the contrary, those who had been tempted perceived lower risk and anticipated negative affect perhaps as a consequence of cognitive dissonance reduction (Festinger, 1957) or defensive bias (Sherman & Cohen, 2006). No association between self-referencing and biased processing for high similarity group may be due to the small number of participants who actually had used study drugs. Future studies with more individuals who actually engaged in negative behaviors (e.g., smokers) may find a significant, positive relationship.

Implications of Narrative Perspective and Processing Motive

Although Study 4.1 found no narrative perspective difference on identification, the manipulation of processing motive in Study 4.2 revealed that 1st person narrative is more conducive of producing identification than 3rd person narrative under the experiential mode. Kaufman and Libby (2012) argued that 1st person narration is a necessary but not sufficient condition to invite audiences to simulate the subjective experience of a character. They suggested shared group membership between audience and character as a boundary condition. Study 4.2 finding suggests that their proposition applies not only to the actual group membership based on demographic factors (e.g., race, sexual orientation), but also to psychological membership based on audience's self-categorization. The character who struggles with a negative health issue could be perceived as an out-group by participants, psychologically distancing themselves as a form of defensiveness.

It is possible that the experiential motive in Study 4.2 helped narrative audiences remove themselves from the self-focused state and reduce distancing from the negative character; therefore observing the effect of narrative perspective on identification. Higher identification (among those who read 1st person narration with the experiential motive) in turn reduced biased

processing of a health narrative. Although people tend to identify only with the positive characters, but not with those who have negative traits (Sestir & Green, 2010), a motivation to experientially process a narrative could undo this tendency, increasing the likelihood of risk perception change.

Interestingly, the experience of transportation took more than a processing motive; whether or not the experiential motive produces higher transportation (versus analytical) was contingent on audiences' story-congruent memories and a story being narrated through the victim's voice. Under the experiential motive, high similarity individuals were more transported by a narrative written in the first person than the third person (consistent with the pattern found on identification). Under the analytical motive, however, high similarity individuals were more transported to the story narrated by an external observer than when the victim told her own story. Combined, first-person narration can be more disturbing to those who have similar negative experiences as the character when they are in a critical or elaborative mindset. The experiential motive can overturn this defensive reaction, thus increasing personal risk perception among those with autobiographical similarity to the negative character.

Pathways to Increasing Perceived Risk

This study addressed two pathways through which transportation changes audiences' perceived risk— either by enabling audiences to prospect their feelings after using study drugs (negative anticipated affect) or by decreasing biased processing of a health narrative. These two mechanisms fully mediated the relationship between transportation and perceived risk. The first pathway through negative anticipated affect reflects the predominant way by which people interpret risk—intuitive feelings about risk as the affect heuristic (Slovic et al., 2004; Clore, Schwarz, & Conway, 1994). Consistent with the notion that transported individuals vicariously

experience emotions and motivations related to the narrative events as their own (Green & Brock, 2000), the current study found stronger negative anticipated affect induced by transportation. It is possible that narrative audiences experience a variety of emotions from self-referent emotions (e.g., fear, alarmed) to other-referent emotions (e.g., sympathetic, compassionate) that are relevant to the story theme. In health context, self-referent emotions are likely to be the important ones that produce personal distress and risk vulnerability than other-referent emotions which rather associated with altruistic motivation (Batson, Early, & Slavarani, 1997; Dunlop et al., 2008). Negative anticipated affect may reflect self-referent emotions experienced by internalizing a health narrative, which likely to enhance audiences' egoistic motivation to alleviate their own distress through not engaging in risky behaviors.

Previous research and theorizing have argued that transported audiences are less motivated and less able to generate counterarguments (Green & Brock, 2000, Slater & Rouner, 2002, Moyer-Gusé, 2008). Moyer-Gusé et al. (2011) also found reduced counterarguments as a function of identification. Adding to this line of literature, the current study suggests that transportation and identification are also capable of reducing attention to self-threatening elements in a health narrative, thereby producing less biased processing, which is conceptualized as a form of defensive adaptation. The effect of self-referencing on biased processing, on the other hand, differed by audiences' autobiographic similarity, suggesting its different nature that is distinguished from transportation or identification, both of which conceptually involves the loss of self-awareness (Cohen, 2001; Green & Brock, 2002). Distinctive natures of narrative mechanisms warrant further research.

This study also raises interesting theoretical questions relevant to mechanisms involved in narrative persuasion. Several scholars have questioned what it means to be transported in

messages that are in non-narrative contexts or when audiences are in an elaborative mindset (e.g., Dunlop et al., 2010, Green, 2004). As the original conception of transportation was developed in narrative contexts (Green & Brock, 2000), advocacy messages were expected to produce lower level of transportation (if any) than narratives. However, transportation level did not differ by message format in several studies (e.g., Braverman, 2008, Dunlop, Wakefield, & Kashima, 2010). The current study thus considered the extent to which audiences experience transportation depends in part by processing motives that serve their psychological needs, which may be influenced by a number of factors including (but not limited to) personal memories, message features, and narrative quality. Although the narrative form may serve as a major cue to a more immersive form of mental processing (Green et al., 2004), the state of transportation can be attained through negotiating conflicting motives that could interrupt the process (e.g., the need to protect one's positive self-image). Narrative theoreticians have considered the loss of self-consciousness as a consequence of the immersion into a text or transportation (Green & Brock, 2002; Csikszentmihalyi, 1990). Yet, the results of this study suggests the process of trying to put oneself inside the story (as instructed in the experiential condition) may also involve relaxing self-boundaries and the loss of self-consciousness.

Limitations and Future Research

First-person narration produced more self-referencing than the 3rd person in Study 4.1, but the pattern was not replicated in Study 4.2. It is possible that the addition of processing goal instruction in Study 4.2 could have interfered with the natural process of relating information to the audience's self-structure. Future research should further examine the effect of narrative voice as it could be a fundamental story feature that influences the way audiences connect themselves

to story characters in a natural setting without direct manipulation or profile matching that had been previously utilized in experimental settings.

To understand the role of processing motive in narrative persuasion, Study 4.2 used written instructions derived from previous research. Transportation has been considered resistant to manipulation (Green, 2004), while in some studies instructing readers to focus on surface features of a story reduced level of transportation (Green & Brock, 2000). Instructions used in Study 4.2 evoked differential narrative experience combined with other study constructs such as narrative perspective and autobiographic similarity. However, it is uncertain to what extent audiences were able to follow the given instruction as story engagement may not be entirely conscious, controllable process for them.

At the same time, transportation measure (Green & Brock, 2000) may not properly tap into the core elements that distinguish 'being there in the story' and 'critically elaborating the story content' because both mental processes involve deep attention paid to the story content. Transportation under analytical mode in Study 4.2 may reflect the notion of cognitive elaboration in persuasion literature (Petty & Cacioppo, 1986), thus observing a lack of impact on risk perception among those with higher autobiographic similarity. Future research should develop manipulations and measures that better capture different mental processes when one encounters a narrative.

Conclusion

Narratives may connect to an audience's past experience and help them recognize their vulnerability to a health threat. Understanding when and how this occurs, however, is not at all simple; it takes into account audience's personal memories and their processing motives, as well as story features like narrative perspective. Having story-congruent memories facilitate more

internal reading of a health narrative, but it may also trigger defensive reactions when the story is counter-attitudinal to the audience's self-conception. Motivating these audiences to take more immersive form of mental processing and narrating a story through the victims perspective could help minimize this counterproductive effects. Findings of Chapter IV contribute to the narrative persuasion literature by addressing the active role played by the self in negative character engagement.

CHAPTER V: UNREALISTIC OPTIMISM ABOUT PERSONAL HEALTH RISK

Chapter Overview

Many health promotion theories from the Health Belief Model (Becker, 1974), to Protection Motivation Theory (Rogers, 1975), to Precaution Adoption Theory (Weinstein, 1988), to the Extended Parallel Process Model (Witte, 1992), identify perceived risk as an important factor for predicting and motivating health behavior. Unrealistic optimism, a mistaken belief about personal risk invulnerability (Weinstein, 1980), has also been associated with negative health consequences and defensiveness in response to risk information (Radcliffe & Klein, 2002; Wiebe & Black, 1997; Dillard, Midboe, & Klein, 2009).

In the context of heavy episodic drinking among college students, Study 5.1 examines two intervention approaches designed to improve risk decision-making, particularly among those with a mistaken risk perception: (1) reducing the level of self-defense motives (using self-affirmation) before exposure to threatening risk information and (2) providing a vicarious experience about negative health consequences through a narrative depicting a person who shares a similar risk profile with the high-risk audience. To specify for whom and under what circumstances each approach is most likely to be effective, this study identifies the presence of unrealistic optimism at the individual level by comparing perceived risk to actual risk based on self-reported behavior. The study further tests the relative efficacy of the two proposed intervention strategies at correcting biased risk perception. Guided by social psychology and communication literature, the study examined transportation, self-referencing, and identification as psychological mechanisms through which unrealistic optimists realize their vulnerability to health risks.

The Context: Heavy Episodic Drinking among College Students

Heavy episodic or binge drinking, defined as the consumption of five or more standard drinks[2] in one sitting for males (four or more drinks for females) at least once in a 2-week period (Wechsler, Lee, Kuo, & Lee, 2000), is a major health concern on college campuses. Nationally representative surveys of college students indicate that more than two of five (44%) college students are binge drinkers, with highest rates observed among fraternity or sorority house residents and members of Greek organizations (Wechsler et al., 2000). Binge drinking behavior is associated with both short- and long-term alcohol-related problems, ranging from hangovers, missing a class, and unplanned sexual activity (Wechsler et al., 2000) to more severe consequences like acute alcohol poisoning, drowning, and automobile collisions, which may even cause death (Browning, Hoffer, & Dunwiddie, 1992; Marklein, 1998). Binge drinkers can also cause secondhand problems by assaulting other students and disrupting others' study and sleeping patterns (Wechsler et al., 2000).

Although college binge drinking is in part derived from institutionalized campus culture that encourages drinking as a social activity (Rabow & Duncan-Schill, 1995), individual college students' inaccurate alcohol-related risk perception also contributes to their binge drinking behaviors. College students tend to consider themselves less vulnerable than their peers to experience negative life events (comparative optimism; Weinstein, 1982) and most comparatively optimistic about their risks to suffer from alcohol-related problems among many other negative events (Weinstein, 1980; Browning et al., 1992). At the same time, researchers have emphasized the importance of distinguishing (comparative) optimism from bias or illusion (Weinstein & Klein, 1996; Kreuter & Strecher, 1995). Although people in general typically consider themselves less vulnerable to health risks than others in a comparative sense, this

[2] One standard drink equals to 12 oz of beer, 5 oz of wine or 1 oz of distilled spirits.

estimation could be either correct (realistic) or incorrect (unrealistic optimism or unrealistic pessimism) depending on the person's actual level of risk (Dillard et al., 2006, 2009; Kreuter & Strecher, 1995). For example, if an individual estimates his/her own risk of experiencing alcohol-related problems to be lower than others because the person rarely consumes alcohol (i.e., low actual risk), the risk assessment would be more or less correct and it would be inappropriate to consider this person as being unrealistic.

The available evidence suggests that unrealistic optimists, those who mistakenly believe that they are less vulnerable to health risks than their peers despite their actual high-risk standing, have more risk factors and less aware of those risk factors than those without accurate risk perception (Dillard, McCaul, & Klein, 2006; Kim & Niderdeppe, 2012; Radcliffe & Klein, 2002; Wiebe & Black, 1997). In a panel study, for instance, college students who were unrealistically optimistic about problems with alcohol at baseline were more likely to experience alcohol-related negative events at 6 month, 1 year, and 1½ year follow-ups (Dillard et al., 2009). This suggests that interventions to curb college binge drinking could benefit from employing strategies to correct college students' inaccurate judgment about their personal risk of experiencing alcohol-related problems. It also emphasizes the necessity to identify distorted risk perceptions at the individual level in order to examine their implications on health promotion and efforts at persuasion.

Study 5.1. Interventions to Reduce Unrealistic Optimism

Implications and Origins of Unrealistic Optimism

The present study categorizes college students into three groups depending on the existence and the direction of their bias (Dillard et al., 2009): *unrealistic optimists* (those who perceive low risk despite their actual high risk standing), *realists* (those who hold accurate risk

perceptions in line with their actual risk status), and *unrealistic pessimists* (those who perceive higher risk than their actual risk status). Research based on similar categorizations suggests that unrealistic optimists have more risk factors and are more likely to perform risky behaviors compared to those with accurate risk perception (Dillard et al., 2006, 2009; Klein, Geaghan, & MacDonald, 2007). Unrealistic optimism has also been associated with lower likelihood of taking precautionary or preventive actions (e.g., Kim & Niederdeppe, 2012; Klein et al., 2010). Combined, the first hypothesis examines the implications of unrealistic optimism in the context of college binge drinking to provide foundations for designing interventions targeting individuals with such bias.

> *Hypothesis 1 (H1)*: Compared to realists and unrealistic pessimists, unrealistic optimists will (a) have more risk factors and (b) have lower intentions to decrease alcohol consumption.

Different approaches may be required to change biased perceptions depending on the origins of those biases. Although unrealistic optimism is thought to originate from multiple psychological factors that are difficult to tease apart (Weinstein & Klein, 1996), considerable evidence suggests that both cognitive and motivational factors contribute to the emergence of unrealistic optimism. Unrealistic optimism may originate from cognitive errors in processing risk information due to egocentrism, lack of information about other's self-protective behaviors, and selective focus on one's (insufficient) risk-reducing factors (e.g., Weinstein, 1980, 1983; Hoorens, 1993; Weinstein & Lachendro, 1982). If unrealistic optimism results solely from these unmotivated errors in understanding the risk people face, then providing individuals with risk information that they had been unaware of or overlooked should be able to correct their misperceptions.

However, studies have shown that those with unrealistic optimism are resistant to informational campaigns due to self-serving motivations to protect and maintain a positive self-image (Klein, 1996; Weinstein, 1983; Weinstein & Klein, 1995; Klein & Kunda, 1993). Raising awareness about overlooked personal risk factors could actually prompt defensive information processing and interpretation, when an individual is motivated to self-defend (Weinstein & Klein, 1995). Unrealistic optimists tend to employ ego-protective strategies such as avoiding risk information and underestimating personal relevance of health risk (Radcliffe & Klein, 2002; Wiebe & Black, 1997; Klein, 1996). For instance, one study found that those who reviewed their sexual history (i.e., highlighting their risk-increasing behavior) became even more unrealistically optimistic about their risk compared to those without a review (Gerrard, Gibbons, & Warner, 1991).

In order to correct unrealistic optimists' perceived risk in line with their actual risk level, it seems crucial to both identify those who have unrealistic risk judgments and to develop effective ways to promote risk-reducing behaviors. To do so would seem to require efforts to reduce possible defensive reactions, considering that unrealistic optimists are particularly likely to employ ego-protective strategies to avoid or resist information that highlights their risk (Klein et al., 2010; Radcliffe & Klein, 2002). Guided by literatures in psychology and persuasion, two intervention strategies are proposed to accomplish this goal: (1) providing vicarious experience through a narrative depicting a person with a risk profile similar to the audience, and (2) eliminating the need for self-defense with self-affirmation before exposure to threatening risk information. The following section explores the circumstances (for whom, and when) each intervention could be most effective.

The Relative Efficacy of Narrative vs. Non-Narrative Information

Narratives (operationalized here as short, personal testimonials) can influence audiences' thoughts, attitudes, and behaviors by offering vicarious experiences that audience members have not otherwise experienced (Niederdeppe, Shapiro, & Porticella, 2011; Strange, 2002; Strange & Leung, 1999). People tend to use direct experience to predict the future more than other factors (like personal dispositions or population base rates) because personally experienced events offer more concrete detail and sensations than statistical data (Osberg & Shrauger, 1986; Weinstein, 1989). Although risks are often perceived abstractly and distant, exposure to a narrative that attempts to mirror direct experience may provide an opportunity to imagine oneself in the situation, relating to oneself and own life, thus increasing the salience of risk in the mind of audiences.

Yet, it is largely unknown whether narratives would be more effective than non-narrative information messages at improving risk-related judgments among unrealistic optimists. At the same time, narratives are considered to be a relatively subtle form of persuasion that are less susceptible to selective exposure, and such they may be particularly useful for addressing risk vulnerability among unrealistic optimists who tend to adopt self-protective strategies (Radcliffe & Klein, 2002; Klein, 1996; Wiebe & Black, 1997). Bravermann (2008) found that a personal testimonial was perceived as more persuasive than an informational message among those who were less motivated to process the given health information. Combined, this may suggest that narrative approach could be particularly effective for unrealistic optimists, those with higher tendency to avoid risk information, compared to realists (and unrealistic pessimists). This is likely to be accompanied by reduced biased processing, a form of defensive response to health information perceiving its content to be exaggerated or distorted to negate the information value.

Thus, a hypothesis predicts comparative advantage for narratives over informational messages among unrealistic optimists at overcoming resistance to threatening health messages.

Hypothesis 2 (H2): Compared to informational messages, narrative messages will be associated with (a) reduced biased processing and (b) increased perceived risk among unrealistic optimists, but not among realists or unrealistic pessimists.

The comparative advantage of narrative versus non-narrative (informational) messages on persuasive outcomes has often been explained with the concept of transportation (e.g. Dunlop, Wakefield, & Kashima, 2010; Green & Brock, 2000; Moyer-Gusé, 2008; Bravermann, 2008). Transportation is an audience member's experience of being caught up in the narrative world, which requires his/her attention, imagery, and feelings focused on what's happening in the narrative (Green & Brock, 2000). Transportation is distinguished from the concept of cognitive elaboration in persuasion theories, which refers to critical attention to arguments and evidence presented in a message) (e.g., Petty & Cacioppo, 1986). Informational messages are associated with cognitive elaboration, whereas engagement with narratives is thought to involve a different process described as transportation (Green & Brock, 2000).

Imagining narrative events occupies mental capacity. As a result, transported audiences are less likely to attend to persuasive aspects of a message and therefore produce less negative cognitive responses that run counter to the message's advocated position (Green & Brock, 2000; Green, Chatham, & Sestir, 2010; Slater & Rouner, 2002; Dal Cin, Zanna, & Fong, 2004). Transportation may also be a mechanism through which audiences can move away from the self-focused state associated with self-defense motives. Self-awareness is likely to be reduced when audiences are immersed into a text as they temporality lose an access to the real world-facts (Green & Brock, 2002; Csikszentmihalyi, 1990), which may also include factors relevant to

important self-conceptions. If this is the case, the mediating effect of transportation should differ by unrealistic optimism, explaining the relative efficacy of narratives at reducing biased processing and increasing perceived risk amongst unrealistic optimists. A previous study provided evidence consistent with this claim, finding that transportation level was more influential among those who were less motivated to process health information (Bravermann, 2008). A research question is posed to investigate whether transportation mediates the interactive effects of message type and unrealistic optimism on biased processing and perceived risk described in H2:

> *Research Question (RQ1)*: Does transportation explain the relative efficacy of narrative message (vs. informational) at reducing biased processing or increasing perceived risk for unrealistic optimists?

Self-Affirmation to Enhance the Efficacy of Informational Message

In the previous section, narrative messages were hypothesized to be more effective than informational messages at correcting a mistaken risk perception based on its potential capability to reduce defensive reactions among unrealistic optimists. Then, this would also mean that the efficacy of informational messages can also be improved by using alternative methods designed to reduce self-defensive motives. Self-affirmation theory (Steele, 1988; Sherman & Cohen, 2006) suggests that affirming important but topic-unrelated domains of self-identity (e.g., reflecting on personal values) can accomplish this goal. Empirical evidence from a variety of health contexts supports the usefulness of self-affirmation in making the self more receptive to threatening health information (e.g., Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000; Epton & Harris, 2008; Harris, Mayle, Mabbott, & Napper, 2007).

Recent investigations in this area, however, suggest the possibility of self-affirmation being ineffective or even harmful in the absence of threat (e.g., Harris & Napper, 2005). In one recent study, unrealistic optimism moderated the effect of self-affirmation, such that cancer-screening intentions increased only among self-affirmed unrealistic optimists in response to personalized risk feedback (Klein et al., 2010). For unrealistic pessimists and realists, self-affirmation actually decreased screening intentions compared to their non-affirmed counterparts. It is possible that self-affirmation works only for unrealistic optimists, who likely to have higher self-defensive motives, but not for those who lack such motives (realists and unrealistic pessimists). It is unclear from Klein et al. (2010) whether the moderating effect on intentions was due to the changes in perceived risk or other psychological mechanisms. Thus, this study attempts to replicate their findings on producing biased processing and changes in perceived risk.

> *Hypothesis 3 (H3)*: Self-affirmation will be associated with (a) reduced biased processing and (b) increased perceived risk after reading informational messages among unrealistic optimists, but not among realists or unrealistic pessimists, or after reading narrative messages.

Scholars have emphasized producing personalized responses (through the reduction of social distance) to change perceived risk vulnerability through narrative or informational interventions (e.g., Moyer-Gusé, 2008; So & Nabi, 2013; Dunlop et al., 2008, 2010; Campbell, & Babrow, 2004; Escalas, 2007). *Identification,* which refers to audiences' cognitive and emotional experiences that take place by adopting the perspective of a narrative character (Cohen, 2001), has been suggested as a key narrative mechanism that increases audiences' risk vulnerability (Moyer-Gusé, 2008). *Self-referencing*, which refers to the cognitive processes that occur when information is understood by comparing it to self-relevant information stored in

memory (Debevec & Romeo, 1992), has also been associated with increased risk perception (Dunlop et al., 2008, 2010). It has been unclear in the literature, however, exactly how audiences reduce social distance with the person described in the health message and produce personalized responses. One possibility is that the reduction in self-defense motives (through narrative or self-affirmation) help audiences to imagine themselves in the situation described in the message (i.e., identification) and to relate the message to oneself thinking about own past behaviors (i.e., self-referencing), thereby increasing the salience of risk in the audiences' mind. A research question is offered to examine this possibility:

> *Research Question 2 (RQ2)*: Does self-referencing or identification explain the interactive effect between self-affirmation and message condition on increasing perceived risk among unrealistic optimists?

Method

A randomized between-subject experiment was conducted with 2 self-affirmation (affirmed vs. non-affirmed) and 3 message conditions (narrative vs. informational vs. no treatment control). Participants were categorized into three risk standing groups (unrealistic optimist, realist, or unrealistic pessimist) on risks associated with heavy episodic drinking using an objective risk measure (a typical week's maximum blood alcohol content, BAC) and participants' own comparative estimates of their own risk of alcohol-related incidents.

Procedure and participants. College students (n = 396) were recruited in exchange for extra credit for their participation between March 12th and April 20th, 2013. The study proceeded in two phases, both of which were administered via a link to a survey site on the Internet. Seven participants who completed only the first survey were excluded, thus resulting in an analytic sample of N = 389. In the first survey, participants reported their alcohol consumption patterns,

personal beliefs about alcohol (e.g., risk judgments), drinking history, and demographic information (including height and weight to calculate maximum BAC). After completing the first survey (with 2-3 days), participants received an email invitation that included a link to the second survey. In the second survey, participants were randomly assigned to either the affirmation or the no affirmation condition (the same induction method as Study 3.3). Then, they were assigned to one of three message conditions: (1) a personal testimonial narrative message condition, (2) an informational message condition, and (3) no message control condition. A post-message questionnaire measured participants' responses to message conditions (biased processing, identification, transportation, self-referencing), perceived risk, and intentions to decrease alcohol consumption. See Appendix 5A for the full questionnaire items used in the experiment.

Respondents consisted of 76% women and their age ranged from 18 to 34 (M = 20, SD = 1.66). Sixty-one percent self-identified as White, followed by Asian (25%). Of the respondents, 18% were freshmen, 31% were sophomores, 27% were juniors and 25% were seniors. Equivalent number of respondents lived either in a dormitory (40%) or off-campus with roommates/housemates (2-4 persons, 21%; 5 or more persons, 19%). Half of the respondents were members of fraternity or sorority, and 19% were members of a community service organization. Twenty-one percent of respondents reported being frequent binge drinkers (binge drank 3 or more times in the previous 2 weeks), 32% were occasional drinkers (binge drank one or two times in the previous 2 weeks), and 39% were abstainers (consumed no alcohol) in the previous 2 weeks.

Self-affirmation conditions: self-affirm and non-affirm. The induction of self-affirmation typically asks individuals to reflect on and write an essay about positive aspects about

themselves (e.g., personal values, personality; McQueen & Klein, 2006). This study instead used the self-affirmation task (and a matched control) developed and tested by Napper, Harris and Epton (2009), which was adjusted for practical use in the online context. This method had the same or better manipulation induction capability compared to other methods including essay tasks (Napper et al., 2009). Participants in both conditions reported on a 32-item questionnaire adapted from the Values in Action (VIA) Strengths scale that covers six core value themes (Peterson & Seligman, 2004): wisdom and knowledge, courage, humanity, justice, temperance, and transcendence.

Participants in the affirmation condition (n = 194) were told that the task is to measure their personal strengths, whereas those in the control condition (n = 195) were told that the task is to measure how people make judgments about the strengths of other people. Participants answered on the same VIA scale either (1) thinking about personal qualities of their own (e.g., "I value my ability to think critically"; 1 = very much unlike me, 5 = very much like me) or (2) thinking about the qualities of a well-known celebrity, David Beckham (e.g., "He values his ability to think critically"; 1 = very much unlike him, 5 = very much like him). The control task lacks the focus on personal values and strengths that provide self-affirming experience, while keeping experimental equivalence on other respects.

Message conditions: narrative, informational, and control. Two versions of the message conditions were written: one in a narrative form and another in a non-narrative, informational form. Both message conditions highlighted risk factors associated with heavy episodic drinking and normative misperceptions that influence drinking behaviors. The narrative condition was based on actual autobiographic stories posted on support group websites for young adults who had experienced a variety of health issues including alcohol abuse (e.g., reachout.com). In the

narrative condition, the story's protagonist told his/her (gender neutral) own experience with binge drinking and described how the amount of alcohol consumption increased overtime and negative academic, social, and health consequences. The narrative also depicted the character's behaviors that increased the likelihood of alcohol poisoning such as drinking on an empty stomach, drinking without any non-alcoholic drinks in between, drinking when rundown or tired, and playing drinking games to take turns of liquor shots. These risky behaviors were identified from campus campaign materials designed to reduce the risk of binge drinking among college students. The narrator also admits his/her normative misperception about the prevalence binge drinking and how that belief influenced his/her own behavior. See Appendix 5B for full text of all study conditions.

The informational condition delivered equivalent content as the narrative condition, but it was modified to distinguish it from narrative features (e.g., Kreuter et al., 2007[3]). For instance, instead of narrating through the character's viewpoint, the message used the second person pronoun to inform normative misperceptions about binge drinking (e.g., "you may overestimate the extent to which other students are engaging in high-risk drinking"). Rather than describing sequential events and character behaviors, the informational condition specified drinking habits that put individuals at higher risk in bullet points and summarized the same negative consequences of binge drinking.

After completing the self-affirmation/non-affirmation task, the no treatment control group proceeded straight to the post-message questionnaire without receiving any message relevant to binge drinking. The inclusion of a control group was to permit accurate conclusions about the two message conditions in case both were successful at increasing perceived risk.

[3] Narrative defined as "a representation of connected events and characters that has an identifiable structure, is bounded in space and time, and contains implicit or explicit messages about the topic being addressed" (p. 221).

Unrealistic optimism. To identify unrealistic optimists, participants' comparative risk perception was compared to their actual relative risk standing (see Table 5.1; Dillard et al., 2009, Wiebe & Black, 1997). In the first survey, participants were asked in random order to rate the likelihood, on a scale from 1 (very unlikely) to 7 (very likely), of experiencing negative consequences from drinking alcohol in the same semester with reference to themselves and the average student in the same university (own risk: $M = 3.05$, $SD = 1.68$; others' risk: $M = 4.78$, $SD = 1.23$). To assess comparative risk perception (Helweg-Larsen & Shepperd, 2001), the difference in scores was calculated between perceived risk of oneself experiencing negative consequences and others: comparative risk = other's risk – own risk ($M = 1.73$, reflecting high optimism overall; $SD = 1.85$). Participants who reported the same scores for the self and others were categorized as "average" and those who rated their own risk to be lower (higher) than others as "below average" ("above average").

To assess actual comparative risk, participants were asked in the first survey to report their typical week's quantity and duration of alcohol consumption on a given occasion in the last month. Typical week BAC[4] was calculated based on the following formula (Collins et al., 2002; $M = .136$, $SD = .17$, $Med = .08$):

$$\text{Typical BAC} = \frac{no.\ of\ drinks}{2} \times \frac{gender\ constant^{5}}{weight} - hours\ of\ consumption \times .016$$

Those within one standard deviation (-.5 *SD* to +.5 *SD*) from the mean typical BAC were categorized as the "average" actual comparative risk (35%). Participants whose scores placed below -.5 *SD* from the mean typical BAC were labeled as "below average" (42%), and participants whose scores placed above +.5 *SD* from the mean typical BAC were labeled as

[4] The National Institute on Alcohol Abuse and Alcoholism (2004) defines binge drinking as BAC 0.08 grams percent or above. BAC above 0.5 has high risk of poisoning and possibility of death.
[5] Gender constant: male = 7.5, female = 9.0 (Collins et al., 2002)

"above average" (23%). Using criteria outlined in Table 5.1. (28 missing cases), participants were classified as unrealistic optimists (42%; *n* = 150), realists (47%; *n* = 169), and unrealistic pessimists (12%, *n* = 42). Due to the small number of unrealistic pessimists, group comparisons were performed only between realists and unrealistic optimists in the subsequent analyses.

Table 5.1. *Categorization Scheme for Unrealistic Optimism*

Comparative	*Actual Comparative Risk (Typical Week BAC)*		
Risk Perception	*Below Average*	*Average*	*Above Average*
Below average	Realists	Unrealistic optimists	Unrealistic optimists
Average	Unrealistic pessimists	Realists	Unrealistic optimists
Above average	Unrealistic pessimists	Unrealistic pessimists	Realists

Alcohol consumption and problems. To examine as correlates of unrealistic optimism, we measured risk factors and alcohol-related problems. The Rutgers Alcohol Problem Index (RAPI) consists of 23 items measuring alcohol-related problems among young adults (White & Labouie, 1989). Problems included items like, "not able to do your homework or study for a test" and "got into fights with other people (friends, relatives, strangers)". Participants reported how many times they had experienced each problem listed while they were drinking or because of their drinking in the past year (0 = none, 1 = 1-2 times, 2 = 3-5 times, 3 = more than 5 times). Responses were averaged into an index of alcohol-related problems (α = .89, *M* = 1.22, *SD* = .29).

In addition, participants were asked (1) how many days in the past 2 weeks they had 5 drinks (for females, 4 drinks) or more on one drinking occasion (*M* = 1.67, *SD* = 2.10) and (2) how often they engaged in the following behaviors: "drinking on an empty stomach" "drinking when you are run down or tired" "playing drinking games", and "drinking shots and/or mixed

drinks" (1 = never, 4 = always; α = .76, *M* = 1.95, *SD* = .59). These items were described as risky drinking behaviors in the message conditions.

Transportation. Green and Brock's (2000) 12-item scale was used to measure transportation. On a 7-point scale (1 = not at all, 7 = very much), participants rated their level of agreement or disagreement on each statement (e.g., "I was mentally involved in the story [message] while reading it", "I could picture myself in the scene of the events shown in the story [message]"). Narrative and informational messages had similar scale reliability ($\alpha_{narrative}$ = .71; α_{inform} = .75). Responses were averaged into a transportation scale (*M* = 3.80, *SD* = .87).

Identification. On a 7-point scale (1 = not at all, 7 = very much), participants answered items from a 10-item identification scale derived from Cohen (2001). Wording of each item was modified to fit the message type (narrative versus non-narrative). For instance, one item stated that "while reading the story [message], I could feel the emotions the character [the person described in the message] portrayed" and "I wanted the character [the person described in the message] to succeed in achieving his or her goals". Items were averaged into an identification scale ($\alpha_{narrative}$ = .89; α_{inform} = .93, *M* = 3.70, *SD* = 1.16).

Self-referencing. Four-item self-referencing scale was derived from Burnkrant and Unnava (1995). For instance, on a 7-point scale (1 = not at all, 7 = a great deal), participants indicated (1) "how much did the story [message] make you think about yourselfyou're your experiences?" and (2) "how much did you think about what it would be like if the events shown in the story [message] happened to you?". Responses to 4 items were averaged into a self-referencing scale ($\alpha_{narrative}$ = .89; α_{inform} = .88, *M* = 3.61, *SD* = 1.43).

Biased processing. To assess the level of biased processing, 9 items were derived from Witte's (1992) content analysis of negative cognitive responses to persuasion. On a 5-point

Likert scale (1= strongly disagree, 5 = strongly agree), participants indicated the extent to which they thought the story [message] was boring, overstated, exaggerated, distorted, untrue, overblown, not very truthful, tried to manipulate their feelings or exploit them ($\alpha_{narrative}$ = .88; α_{inform} = .90, *M* = 2.55, *SD* = .67).

Post-message perceived risk. On a scale from 1 (very unlikely) to 7 (very likely), participants rated the likelihood of themselves experiencing negative consequences from drinking alcohol in the same semester. Also, given their current alcohol consumption patterns, participants reported the extent to which they felt [vulnerable; that they are likely] to experience negative consequences from drinking (Dunlop et al., 2010). Three items were averaged to create a perceived risk scale (α = .89, *M* = 2.74, *SD* = 1.50).

Intentions to decrease alcohol consumption. Derived from studies on college drinking (Collins et al., 2007; Neal & Carey, 2004), 7 items assessed intentions to decrease alcohol consumption. On a 7-point scale (1= definitely will not do; 7 = definitely will do), participants rated the likelihood that they will (1) engage in at least one heavy drinking episode (reverse coded) and (2) decrease/increase the quantity, the frequency, and the peak amount of alcohol consumption in the next 2 weeks (3 items measuring intentions to increase consumption were reverse coded). Seven items were averaged to create an intention scale (α = .75, *M* = 4.30, *SD* = 1.16).

Analytic approach. A series of independent samples t-tests compared unrealistic optimists and realists in risk factors and intentions to reduce alcohol consumption (testing H1). Addressing H2, a series of two-way analyses of variance (ANOVAs) were performed with message conditions, unrealistic optimism, and their interaction terms to test for conditional effects on biased processing and perceived risk. H3 was examined with a three-way ANOVA

with each experimental manipulation (both narrative vs. informational vs. control, and affirmed vs. not), unrealistic optimism and their interaction terms to examine condition effects on biased processing and perceived risk. The no treatment control group was excluded in the analyses that involved message response measures (biased processing, self-referencing, transportation, and identification) because those were not measured for participants who did not have a message to respond to. To examine whether transportation (RQ1), self-referencing or identification (RQ2) carry the influence of interactive effects between experimental conditions and unrealistic optimism onto perceived risk, mediated moderation was tested using the PROCESS macro for SPSS (Preacher & Hayes, 2008). Once an overall moderation of the treatment effect on outcome variable is found (by testing H2 and H3), two other conditions are required to establish mediated moderation, (1) either the partial effect of mediator on outcome depends on the moderator (the case for RQ1) and/or the effect of treatment on mediator depends on the moderator (the case for RQ2), and (2) compared to the moderation of the overall treatment effect, the moderation of the residual direct effect of the treatment should be reduced (Muller, Judd, & Yzerbyt, 2005). The PROCESS macro examines each of these conditions

Results

Correlates of unrealistic optimism (H1). Using independent samples t-tests, significant group differences were found between realists and unrealistic optimists. Compared to realists, unrealistic optimists more frequently engaged in heavy episodic drinking[6] in the past 2 weeks (M = 2.55, SD = 2.20; $M_{realist}$ = 1.15, SD = 1.91, t = -6.14, $p < .001$), reported a higher RAPI index score (M = 1.28, SD = .25; $M_{realist}$ = 1.16, SD = .26, t = -4.12, $p < .001$), and more frequently engaged in risky drinking behaviors descripted later in the message (M = 2.24, SD = .42; $M_{realist}$ = 1.77, SD = .61, t = -7.97, $p < .001$). Also, unrealistic optimists were significantly less intending

[6] Had 5 drinks (for females, 4 drinks) or more on one drinking occasion

to decrease their alcohol consumption (M = 4.00, SD =1.16) compared to realists (M = 4.56, SD =1.20), t (317) = 4.22, p < .001. H1 is thus supported.

Explaining the relative efficacy of narrative (H2 & RQ1). The narrative message was hypothesized to (a) reduce biased message processing and (b) increase perceived risk relative to the informational message for unrealistic optimists, but not for realists (H2). Although no main effect was found on biased processing as a function of unrealistic optimism (p = .50), narrative messages produced significantly less biased processing than informational messages (M = 2.41, SD = .63; M_{inform} = 2.70, SD = .67), t (256) = -3.49, p = .001. A two-way ANOVA found a significant message-unrealistic optimism interaction on biased processing (F = 3.89, B = .36, p = .05, η_p^2 = .02; supporting H2a), but not on perceived risk (F = .40, p = .40; rejecting H2b). For realists, message condition did not make a difference ($M_{narrative}$ = 2.51; M_{inform} = 2.62), but for unrealistic optimists, the narrative message produced significantly less biased processing (M = 2.41, SD = .75) than the informational condition (M = 2.89, SD = .73), t (94) = -3.12, p = .002.

RQ1 asked whether transportation explains the relative efficacy of narrative message (vs. informational) at reducing biased processing (or changing perceived risk, although since no overall effects was found for this outcome analysis not performed further) for unrealistic optimists (i.e., mediated moderation). As expected, narrative messages produced significantly higher transportation than informational messages ($M_{narrative}$ = 3.94, SD = .85; M_{inform} = 3.65, SD = .87), t (256) = 2.75, p = .006. The effect of transportation on biased processing marginally differed by unrealistic optimism (F = 3.11, p = .08, η_p^2 = .02); for unrealistic optimists, transportation significantly reduced biased processing (B = -.20, p = .02), whereas there was no such association for realists (B = -.009, p = .91). Controlling for transportation and allowing the indirect effect via transportation to be moderated by unrealistic optimism, the residual direct

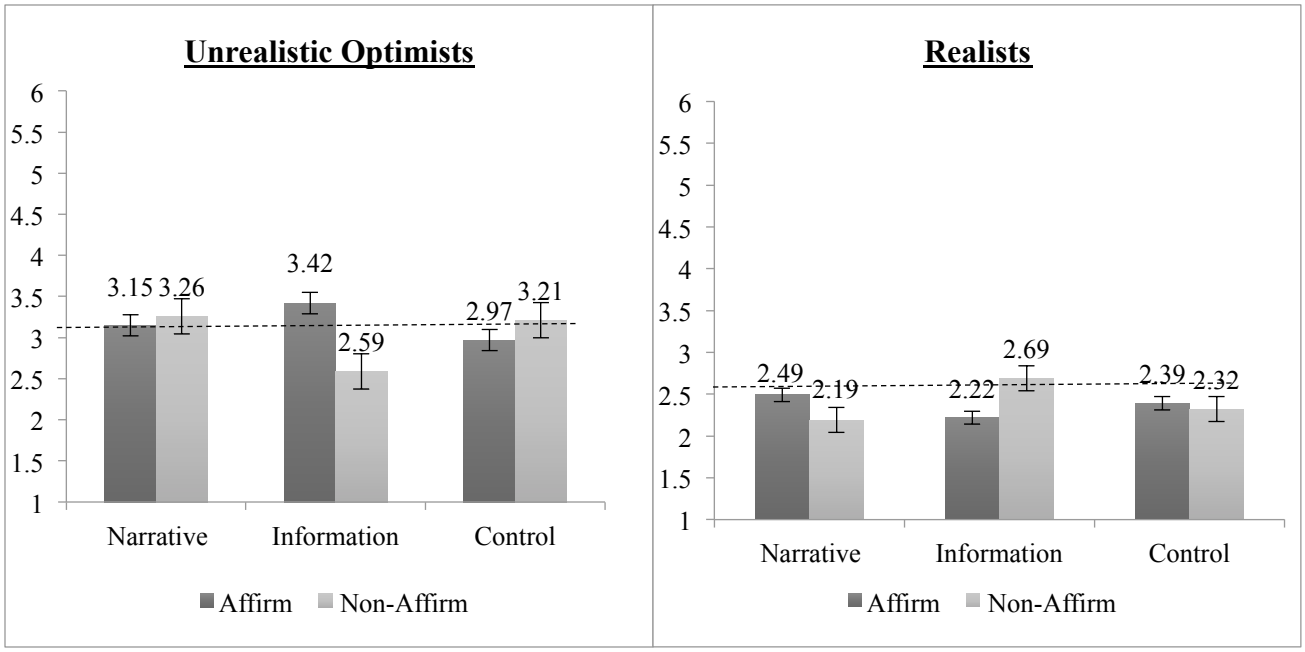
effect of message condition on biased processing no longer depended on unrealistic optimism (interaction $B = .31$, $p = .10$). Using 5,000 bootstrap resamples, the 95% confidence intervals (CI) for the conditional indirect effects via transportation did not include zero for unrealistic optimists ($B = .05$, $CI = .002$ to $.13$). Combined, these results suggest that the interactive effects of message type and unrealistic optimism can be explained by unrealistic optimism changes the magnitude of transportation's partial effect on biased processing.

Although there was no support for H1b, an additional analysis examined whether biased processing indirectly carries the interactive effects onto perceived risk. The conditional indirect effect of transportation through biased processing was significant only among unrealistic optimists ($B = -.07$, $CI = -.20$ to $-.01$), suggesting that reduced biased processing (as a function of transportation) among unrealistic optimists can increase their perceived risk.

Conditional effects of self-affirmation (H3). Self-affirmation was expected to be effective when combined with informational messages among unrealistic optimists at reducing biased processing (H3a) and increasing perceived risk (H3b). A significant three-way interaction was found between self-affirmation, message conditions, and unrealistic optimism on perceived risk ($F = 2.90$, $p = .056$, $\eta_p^2 = .02$), but not on biased processing (H3a rejected). Supporting H3b, after reading an informational message, unrealistic optimists perceived significantly lower risk without the affirmation induction ($M = 2.59$, $SD = 1.10$), compared to their affirmed counterpart ($M = 3.42$, $SD = 1.31$), $t\ (42) = -2.24$, $p = .015$ (1-tailed). For non-affirmed unrealistic optimists, the informational message ($M = 2.59$) produced marginally lower perceived risk compared to the no treatment control ($M = 3.21$, $p = .08$) or the narrative message ($M = 3.26$, $p = .06$; 1-tailed). For affirmed unrealistic optimists, perceived risk did not differ between informational message ($M = 3.42$) and the no treatment control ($M = 2.97$, $p = .11$; vs. narrative, $M = 3.15$, $p = .24$; 1-

tailed). Contrary to the patterns found among unrealistic optimists, realists who read an informational message perceived marginally lower risk when affirmed (M = 2.22, SD = 1.17) compared to their non-affirmed counterpart (M = 2.69, SD = 1.69), t (61) = 1.30, p = .10 (1-tailed). For non-affirmed realists, narrative message (M = 2.19) did not produce statistically different outcome than the informational message (M = 2.69, p = .10; vs. control, M = 2.32, p = .17; 1-tailed).

Figure 5.1. *Perceived Risk by Experimental Conditions and Unrealistic Optimism*



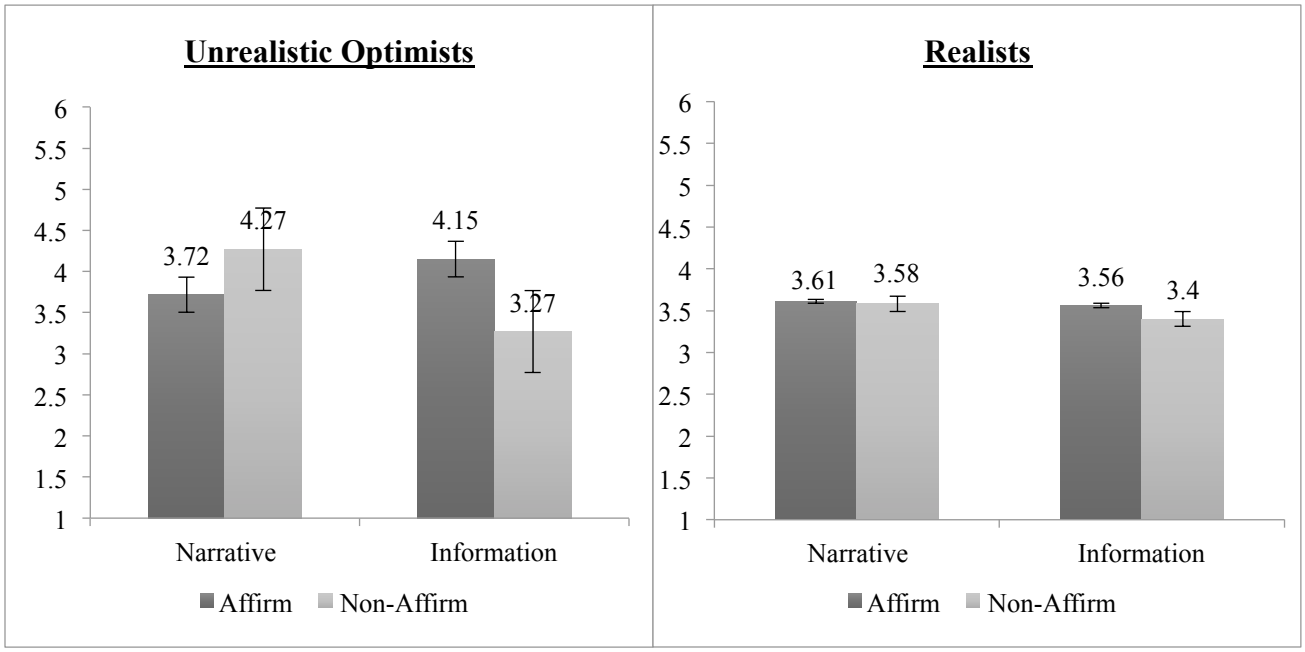
Notes. Dashed line denotes perceived risk at pre-message stage (Unrealistic optimists, M = 3.15, Realists, M = 2.63).

Mediation of self-referencing and identification (RQ2). RQ2 asked whether the three-way interactive effects between experimental conditions and unrealistic optimism on perceived risk were mediated by identification or self-referencing. As a first step, the effects of experimental conditions, unrealistic optimism, and their interactions on both potential mediators were examined. Compared to realists, unrealistic optimists were significantly more likely to identify with the person described in the message (M = 3.91, $M_{realist}$ = 3.54), t (211) = -2.33, p = .02, and

self-reference the message content (M = 3.94, $M_{realist}$ = 3.45), t (212) = -2.63, p = .009. Self-affirmation produced different patterns of identification (F = 8.13, p = .005, η_p^2 = .03) and self-referencing (F = 4.54, p = .03, η_p^2 = .02) depending on the type of message. When reading an informational message, affirmed individuals were more likely to identify with the person described in the message (M = 3.81, $M_{\text{no affirm}}$ = 3.26), t (125) = -2.70, p = .008, and self-reference the message content (M = 3.94, $M_{\text{no affirm}}$ = 3.27), t (126) = -2.98, p = .003, compared to the non-affirmed counterpart. Yet, there was no difference between affirmation conditions when participants read a narrative message.

As shown in Figure 5.2, a three-way ANOVA with unrealistic optimism further revealed that the pattern on identification held only among unrealistic optimists, but not among realists, F = 4.27, p = .04, η_p^2 = .02. For unrealistic optimists who read an informational message, self-affirmation significantly increased identification (M = 4.15, $M_{\text{no affirm}}$ = 3.27), t (41) = -2.51, p = .02. For unrealistic optimists who read a narrative message, self-affirmation marginally reduced identification (M = 3.72, $M_{\text{no affirm}}$ = 4.27), t (50) = 1.81, p = .07. For non-affirmed unrealistic optimists, narrative message produced significantly higher identification than informational message (M = 4.27, M_{info} = 3.27), t (46) = 3.17, p = .003. For affirmed unrealistic optimists, the opposite pattern was found, but it did not reach the statistical significance (M = 3.72, M_{info} = 4.15), t (45) = -1.27, p = .21. There was no significant three-way interaction on self-referencing, F = .63, p = .43. The pattern of findings was consistent with those on identification, except that self-affirmation marginally increased self-referencing (M = 3.80) among realists who read an informational message (vs. non-affirm, M = 3.28), t (61) = -1.48, p = .07 (1-tailed).

Figure 5.2. *Identification by Experimental Conditions and Unrealistic Optimism*

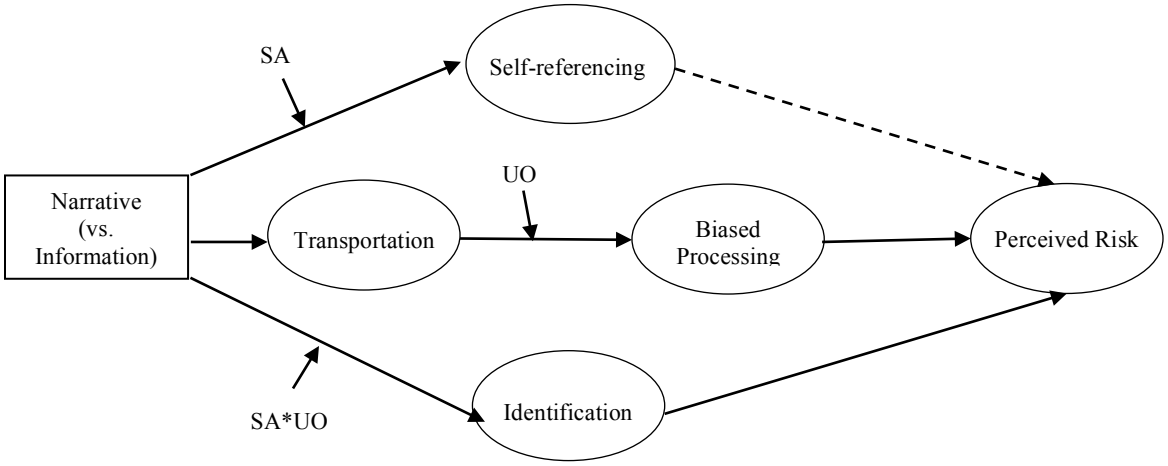


Having confirmed a significant 3-way interaction on identification, mediated moderation was tested using the PROCESS macro. In a model predicting perceived risk, the residual direct effect of 3-way interaction became marginally significant ($B = 1.30$, $p = .09$) controlling for the effect of identification ($B = .40$, $p < .001$). The 95% CIs for the overall indirect effect of identification ($B = .51$, CI = .07 to 1.12) did not include zero, establishing identification as a significant mediator that carries the interactive effects between experimental conditions and unrealistic optimism onto perceived risk. In particular, the conditional indirect effect via identification was significant for non-affirmed unrealistic optimists ($B = -.39$, CI = -.74 to -.15).

Although self-referencing did not explain the 3-way interaction on perceived risk (overall indirect effect, $B = .35$, CI = -.48 to 1.21), self-referencing partially carried the impact of unrealistic optimism on perceived risk. Unrealistic optimists were more likely to self-reference the message content ($M = 3.94$, $SD = 1.29$) compared to realists ($M = 3.45$, $SD = 1.42$), t (212) =

-2.63, $p = .009$. Self-referencing significantly increased perceived risk ($B = .57$, $p < .001$). The 95% CIs for the overall indirect effect of self-referencing ($B = .28$, CI = .08 to .54) did not include zero, suggesting self-referencing as a significant partial mediator of the unrealistic optimism-perceived risk relationship. Figure 5.3 summarizes the findings of this study.

Figure 5.3. Summary of Study 5.1 Results



Notes. SA = self-affirmation conditions; UO = unrealistic optimism; dashed lines denote insignificant paths ($p > .05$).

General Discussion

Humans tend to believe they are less likely than similar others to experience illness, injury, and other negative health issues (Perloff & Fetzer, 1986; Weinstein, 1980, 1983). When this comparative optimism reflects a mistaken belief (e.g., when it occurs despite having an objectively high comparative risk), it is consequential for health promotion (Radcliffe & Klein, 2002; Dillard et al., 2006; 2009; Kreuter & Strecher, 1995). The likelihood of observing unrealistic optimism is high in the context of college binge drinking (Weinstein, 1980; Klein et al., 2007; Dillard et al., 2009), as also evidenced by the current study. It is thus important to develop communicative interventions particularly designed to correct unrealistic optimists'

biased risk perception to curb college binge drinking. To this end, the current study identified college students who have unrealistic optimism about experiencing alcohol-related problems and examined the relative efficacy of two intervention strategies at increasing perceived risk among these individuals. Examining when and how the proposed approaches could be most useful at correcting a mistaken belief about personal health risk, this paper offers theoretical and practical implications for tailoring health messages to the accuracy of one's risk perception.

Narrative Efficacy for Reducing Biased Processing

Unrealistic optimism has been associated with increased risk factors for, and performance of, risky behaviors (Dillard et al., 2006, 2009; Klein et al., 2007). Compared to those with realistic risk judgments, unrealistic optimists more frequently engaged in risky drinking behaviors (e.g., binge drinking, drinking on an empty stomach) and reported a higher RAPI index score, indicating higher chances of having alcohol-related problems. Despite these risk factors, unrealistic optimists had lower intentions to decrease their alcohol consumption.

Unrealistic optimism also has implications for how individuals process and interpret health information. Unrealistic optimists employ ego-protective strategies to help them sustain their mistaken beliefs, such as avoiding risk information, underestimating personal relevance of health risk, and downplaying the riskiness of their behaviors (Radcliffe & Klein, 2002; Wiebe & Black, 1997; Klein, 1996). In the current study, narrative messages were expected to reduce biased processing, a form of defensive responses, compared to informational messages for unrealistic optimists. In line with this prediction, unrealistic optimists processed informational messages in a more biased manner (vs. narratives), downplaying the message content and perceiving themselves as being the subject of an attempt at manipulation. The degree of biased processing did not differ by message type for those with accurate risk perception (realists).

Combined, these findings suggest that narratives could be more effective at reducing biased processing than informational messages for unrealistic optimists, those who potentially have higher self-defense motives.

Transportation as a mechanism. To better understand how narratives can reduce biased processing among unrealistic optimists, transportation was examined as a potential mediator. Consistent with the original conception of transportation that was developed in narrative contexts (Green & Brock, 2000), narrative messages produced significantly higher transportation than informational messages. Transportation, in turn, reduced biased processing only among unrealistic optimists. Researchers have offered transportation as a key mechanism for narrative persuasion based on its capability to reduce attention to persuasive aspects in a message and reduce the tendency to counterargue the message (Green & Brock, 2000; Green, Chatham, & Sestir, 2010; Slater & Rouner, 2002). The current study adds to this literature by suggesting that transportation also reduces attention to self-threatening elements in health messages, thus reducing biased processing only among unrealistic optimists— those most likely to consider the message as counter-attitudinal to a positive self-conception. In line with this notion, narrative theoreticians have addressed the loss of self-awareness or self-consciousness that occurs when audiences are immersed into a narrative (Green & Brock, 2002; Csikszentmihalyi, 1990). In health context, narratives could be more useful than informational messages at reducing defensive reactions by transporting audiences into the story world. This observed reduction in biased processing among unrealistic optimists translated into their personal risk perception.

Conditional Effects of Self-Affirmation

Implications for unrealistic optimists. In light of the premise that self-affirmation can make individuals more receptive to threatening health information (e.g., Sherman et al., 2000;

Epton & Harris, 2008), particularly amongst those with heightened ego-defense motives like unrealistic optimists (Klein et al., 2010), this study examined whether self-affirmation improves the efficacy of informational messages that challenge comparative optimism. Klein et al. (2010) found that cancer-screening intentions increased after receiving personalized risk feedback among self-affirmed unrealistic optimists, but not their non-affirmed counterparts. Consistent with this pattern, self-affirmation and unrealistic optimism had an interactive effect on perceived risk in response to informational messages. Without affirmation, unrealistic optimists who received an informational message reported significantly lower perceived risk compared to their affirmed counterpart (even compared to the no affirm, no treatment control), suggesting an activation of self-defense motives. As expected, self-affirmation did not change the relative efficacy of narrative at improving unrealistic optimists' risk perception, reflecting an absence of self-threat in narrative forms of messages for these individuals.

In light of research that suggests personalized responses through the reduction of social distance are required to change perceived risk vulnerability (Moyer-Gusé, 2008; So & Nabi, 2013; Dunlop et al., 2008, 2010), self-referencing and identification were examined as mechanisms that carry the interactive effects between experimental conditions and unrealistic optimism onto perceived risk. Self-affirmed unrealistic optimists were more likely to identify with the person described in the informational message (vs. non-affirmed counterpart). When unrealistic optimists were not affirmed, narrative message produced significantly higher identification than the informational message. Identification, in turn, carried the interactive effect onto perceived risk, establishing it as an important mechanism through which unrealistic optimists realize their risk vulnerability. Combined, an informational message accompanied by self-affirmation is likely to be effective at increasing perceived risk among unrealistic optimists.

At the same time, it may not be feasible to provide self-affirmation in some types of behavioral interventions, particularly mediated campaigns. In these instances, narrative messages appear to hold potential to functionally perform in the same way by increasing unrealistic optimists' identification with a narrative character.

Despite a significant message type-affirmation interaction on self-referencing, this effect was not transferred onto perceived risk because the interaction pattern was not unique to unrealistic optimists. Instead, self-referencing partially mediated the effect of unrealistic optimism on perceived risk regardless of experimental conditions. Unrealistic optimists were more likely to self-reference the message content for both message types, which in turn associated with their higher perceived risk. Although the concepts of self-referencing and identification each refer to the ways that audiences relate themselves to the given health information, they are likely to have differential roles in health persuasion. Future research should further investigate when and how these mechanisms transfer to persuasive outcomes.

Implications for realists. Some previous research has found that depictions of a high-risk individual can worsen unrealistic optimism by constructing negative stereotypes of a person who has a health problem (e.g., Weinstein & Klein, 1995, Study 3). The present study suggests that this is a possibility among non-affirmed realists when they are exposed to a personal testimonial narrative. Informational messages helped maintain an accurate risk perception (consistent with their pre-message risk perception), but perceived risk decreased slightly after reading a narrative. Considering that social comparisons are an important part of how people understand their personal risk (Klein & Weinstein, 1997; Klein, 2003), a narrative featuring a high-risk individual could have prompted social comparisons among realists who have less risk factors than the person described in the narrative. As a consequence, this comparison could have lowered their

personal risk perception below its actual (objective) level. Future studies should replicate this with bigger sample sizes and examine ways to minimize this unintended outcome among realists.

Some scholars raised the possibility that self-affirmation can backfire in the absence of self-threat (e.g., Harris & Napper, 2005; Klein et al., 2010). For instance, Klein et al. (2010) found that self-affirmation decreased screening intentions among realists (and unrealistic pessimists) compared to those non-affirmed. The current study found consistent results with this finding - when presented with an informational message, realists reported lower perceived risk when they were self-affirmed compared to those without affirmation. Research also suggests that self-affirmation may increase esteem-based self-judgments (Klein & Monin, 2009) or confidence (Briñol, Petty, Gallardo, & DeMarree, 2007) in persuasive settings that are not threatening to the self, which in turn decrease audience's motivation to process information. Those with accurate risk perception may not have viewed informational messages as self-threatening because they have lower objective risk, thus self-affirmation resulting in less persuasion. This speculative explanation warrants further study.

Limitations and Future Research

Several limitations are worth noting. This study was unable to investigate the patterns among unrealistic pessimists because the number of participants categorized in this group was not large enough to permit valid group comparisons (vs. unrealistic optimists or realists). This is not unprecedented in studies that utilized similar categorization scheme (e.g., 3% unrealistic pessimists in Dillard et al., 2009; 16% in Kim & Niederdeppe, 2012; 23% in Klein et al., 2010). Unrealistic pessimists tend to be more receptive to health information and to take precautionary actions (vs. unrealistic optimists) (Klein et al., 2010; Kim & Niederdeppe, 2012); as a result, they may not be a primary target of health interventions.

In addition, cell sizes for some of experimental groups were relatively small to examine 3-way interactions (e.g., $n = 20$ in the non-affirmed unrealistic optimists in the informational condition; $n = 18$ in the affirmed realists in the control condition). Marginal group differences reported here should be further examined in future research with sufficient numbers of participants in each cell.

This study used the comparative definition of unrealistic optimism in light of research that suggests people often think about their risk in comparative terms (Klein, 1997, 2002, 2003) and in part due to difficulty with measuring (and defining) an absolute risk of having alcohol-related problems. Although unrealistic optimists misperceived their comparative risk they did tend to have higher personal risk perception than realists. Binge drinking is a habitual behavior for which most individuals likely to have their own patterns of drinking. As a result, it is possible that individuals are generally aware of their risk factors associated with alcohol consumption even if they perceive other's risk be higher than theirs. These findings should be interpreted with caution and replicated before applying them to other health domains that involve non-habitual behaviors.

Although participant's risk perceptions were measured at one time, the accuracy of risk perception is likely to be a stable individual factor, in light of research that suggests people's comparative risk estimates tend to be reliable (Shepperd, Helweg-Larsen, & Ortega, 2003). It should also be noted that BAC was calculated from self-reported typical amounts and duration of alcohol consumption, which participants may not accurately remember. Future work could develop better methods to assess actual (relative or absolute) risk of alcohol-related incidents.

Conclusion

This study illuminates psychological mechanisms involved in the reduction of defensive responses among unrealistic optimists, a group at high-risk for negative alcohol-related incidents. The relative efficacy of proposed intervention strategies, including narrative messages and self-affirmation, depended on the existence of unrealistic optimistic bias, raising the importance of tailoring health messages to this particular audience characteristic. Providing risk information to unrealistic optimists that challenges their comparative optimism, while concomitantly protecting the self-concept via self-affirmation or via narratives, may reduce biased processing and help to correcting their perceived risk.

CHAPTER VI: CONCLUSIONS

Dissertation Overview

This dissertation addressed audience members' motivation to protect the self-concept from a potential threat, which is a critical element in deterring health persuasion. Guided by theories and research in social psychology and communication, this dissertation examined the efficacy of three intervention strategies at overcoming resistance based on self-defense motives: (1) self-affirmation, (2) value-expressive message framing, and (3) narrative persuasion. Although these strategies are rooted in different theoretical backgrounds and mechanisms, they have in common as a subtle form of "omega persuasion strategies" that indirectly address resistance. Studies reported in this dissertation identified potential sources of self-threat treating them as individual difference factors (e.g., ego-defensive attitude, autobiographic history, and unrealistic optimism) and investigated their interplay with intervention strategies on producing better persuasive outcomes. The following section summaries major findings of the individual study chapters and discuss their collective implications for health communication theory and practice.

Major Findings of Study Chapters

Chapter III investigated the efficacy of value-expressive message framing and self-affirmation at reducing the influence of attitudes serving an ego-defensive function in the context of psychiatric help-seeking among young adults. Study 3.1. first identified important reasons for holding negative attitudes toward PHS in relation to the target audiences' value structures and motivational goals. Based on these results, three message conditions (i.e., health or self-direction value-expressive and a control) were written and tested in Study 3.2. as to whether value-

expressive messages could be useful for forming positive PHS attitudes. In Study 3.3., the efficacy of value-expressive-message framing and self-affirmation was examined in association with two potential sources of self-threat ('the feared selves' of being unhealthy and stigmatized by others). Results show some boundary conditions to the positive effect of two intervention strategies depending on the strength of a self-threat. Value-expressive messages can be useful for manipulating attitude functionality by providing recipients with an opportunity to reframe a health behavior in a way that enhances their positive self-image, particularly addressing concerns with stigmatization. Self-affirmation decreases the need for self-defense for those who most concern stigmatization, thereby enhancing their positive attitude and willingness to seek help when depressed. Explaining the origins of ego-defensive attitude and its influence on message processing and belief change about PHS, the study findings offer implications for health communication practice in endorsing PHS as an important means toward depression treatment.

Chapter IV examined the efficacy of health narratives at increasing perceived risk in the context of study drug use among college students without a prescription. Specifically, studies in Chapter IV addressed the mechanisms through which narrative audiences produce internalized responses to health narratives beyond their self-integrity concerns. Study 4.1 first examined how audiences connect to a health narrative and its character (self-referencing and identification) as a function of autobiographic similarity with the character and different perspectives through which a narrative is told (1^{st} vs. 3^{rd} person). Study 4.2 further examined these two factors with an addition of processing motive manipulation (experiential vs. analytic) to investigate whether different mental processing involved in narrative reading help explain narrative efficacy at overcoming resistance. Audiences with similar autobiographic memories were more likely to self-reference the story content and to identify with the narrative character. However, they were

also inclined to adopt ego-protective strategies, denying own vulnerability and engaging in biased processing. For these individuals, 1st person narrative was more effective at increasing perceived risk (vs. 3rd person) under the experiential motive. Transportation explained this pattern of finding through decreasing biased processing and providing anticipated negative emotions. Examining factors that prompt more internalized reading of a health narrative and the processes through which these factors lead to changes in perceived risk, Chapter IV help us better understand the active role played by the self in processing health narratives.

In the context of heavy episodic drinking, Chapter V examined the relative efficacy of narratives (vs. informational messages) with or without self-affirmation at correcting a mistaken risk perception among college students. To specify for whom and under what circumstances each approach is most likely to be effective, Study 5.1. identified the presence of unrealistic optimism at the individual level, and examined the effects of proposed intervention strategies depending on the accuracy of audiences' risk judgment. Narrative was more effective at reducing biased processing and increasing identification among unrealistic optimists compared to informational messages. Yet, when combined with self-affirmation, informational messages became more effective at increasing perceived risk among unrealistic optimists, allowing these individuals more likely to identify with the person described in the message.

General Discussion

Collectively, the study results reported in Chapters III, IV and V address three primary objectives of this dissertation: (1) identifying different origins of self-threat to examine their influence on health information processing and persuasion, (2) examining the efficacy of intervention strategies aimed at reducing resistance based on self-defense motives, and (3) investigating specific mechanisms through which self-defense motives could be reduced by the

proposed strategies. Addressing these objectives help advance our understanding of the nature of self-defense motives and offer some clues to deal with defensive resistance in health communication practice.

Origins of self-threat. One objective of this dissertation was to address possible reasons why audiences would consider health messages as self-threatening. This dissertation thus covered three health contexts that involved different self-integrity concerns including future-oriented identity concerns (the likelihood of stigmatization), past identity concerns (message congruent experience), and a desire to maintain a positive self-view (unrealistic optimism). This extends prior research that examined the role of self-conception in health persuasion by addressing different self-domains that could be threatened beyond "being healthy" or the current self.

The extent to which an audience experiences a self-threat by health information depends in part on whether or not (a) one considers a challenged domain to be an important part of their self-conception (Boninger et al., 1995; Steel, 1988), (b) one perceives discrepancies between the actual self and the ought self indicated in the information (Higgins, 1987), and/or (c) one perceives the salient 'feared self' not malleable with own control (i.e., lack of efficacy to change the future self, Markus & Nurius, 1986). For instance, a message promoting mental health treatment was processed more negatively among those who perceived themselves as vulnerable to depression as well as who considered protection of their public image important. The message neither explicitly raised the possibility of depression nor implied audiences' maladaptive behaviors. Yet, health messages can still be threatening by raising awareness about audiences' feared selves in important self-domains (being unhealthy or presented as unbalanced to others),

perhaps in a health context where individuals cannot exercise agency to escape from their feared selves (i.e., there is not much to do to avoid stigmatization).

The study results, however, suggest that the influence of self-defense motives on health information processing and persuasion is not contingent on their origins. Across three health contexts, the strength of audiences' self-defense motives, regardless of their origins, was an important moderating factor that changed the effectiveness of the proposed intervention strategies. Self-affirmation was most effective among those who concerned about stigmatization associated with depression treatment and who defensively underestimated their health risks. Similarly, the self-direction value-expressive message was most useful for the audiences with higher self-integrity concerns. Also, health narratives were effective at reducing biased processing among unrealistic optimists and those who had story congruent memories under certain conditions. Combined, the strength of a self-threat appears be an important factor for health persuasion rather than its origins. This reflects the notion that what matters to people is often the protection of an overall sense of self-integrity than the specific self-domains under threat (Sherman & Cohen, 2006). Nonetheless, identifying sources and reasons for self-defense in health persuasion help us better understand the nature of defensive resistance, and thus offer guidance for the design of effective health messages. This dissertation offers a basis for theory building in this area by proposing several ways to classify and operationalize individual differences in defensiveness.

Strategies to overcome self-defense motives. Another objective of this dissertation was to examine the efficacy of three theory-derived intervention strategies aimed at reducing defensive resistance. Considering the nature of self-defense motives, I chose "omega persuasion strategies" (Knowles & Linn, 2004) that take the most indirect route so that it does not raise resistance in the

first place, and therefore minimizes the avoidance forces. Each strategy has its own theoretical rationale and mechanisms through which theory proposes the strategy could reduce defensive resistance. The use of self-affirmation was intended to take away the need for resistance, whereas value-expressive message framing was used to help audiences sidestep resistance by redefining a health behavior. On the other hand, narratives were theorized to distract resistance by absorbing audiences' attention in the story. The results reported in this dissertation overall suggest that these three strategies can enable audiences, under certain conditions, to become more open-minded to accept threatening health information that could improve the quality of their health decisions.

This dissertation examined whether the proposed intervention strategies help overcome defensive resistance independently, or complementally with another. However, this research program did not investigate the relative efficacy among three proposed intervention strategies because each strategy was qualitative different from another, making it hard to perform parallel comparisons. That is, narrative is one form of communication whereas message framing is to emphasize specific values, facts, and other concepts to selectively present information in a message. Also, self-affirmation is a mindset manipulation that is apart from the characteristics of a message. Thus, this dissertation does not answer to the question as to whether distracting resistance would be more effective than sidestepping resistance or removing the need for self-defense. In practice, the selection of intervention strategies should be contingent on the availability of each intervention considering the nature of each health context and audience characteristics. For instance, when promoting a health behavior, of which the target audiences predominantly hold negative attitude toward, it would be beneficial to reframe the behavior using a message framing strategy, so that it can sidestep potential resistance. When the audiences' self-

integrity concerns are associated with past negative health behaviors, absorbing narratives could be more useful for reducing defensive reactions than informational messages. The utility of self-affirmation, on the other hand, depends on the existence of a self-threat as it can be counterproductive without such a threat.

Significance of the Research Program

Resistance is a critical component in the processes of persuasion. Previous research often treated "resistance" as a failed persuasion attempt such as a lack of attitude or behavior change. This dissertation instead defined resistance to persuasion as a motivational state to withstand a persuasive attempt. By defining resistance as a motive, I conceptualized the level of resistance to vary by individuals and contexts, and therefore with the potential to be minimized when strategically approached. This dissertation contributes to our understanding of the resistance to health persuasion by (1) addressing the role of self-conception and (2) clarifying the theoretical mechanisms that promote persuasion by reducing the avoidance forces.

The role of self-conception. In health communication research, resistance to persuasion has often been addressed with the concept of psychological reactance— a form of resistance induced by the threat to individual's perceived autonomy (Brehm, 1966). Researchers have theorized reactance to accompany anger and counterarguments and proposed several tactics that may circumvent this particular form of resistance (e.g., Quick & Stephenson, 2007). Although reactance is a critical element that deters persuasion, resistance can be the result of many different processes beyond perceived threat to one's freedom of choice. This dissertation thus attempted to theorize and investigate implications of another important, but understudied, motivator for resistance— a motivation to protect the self-concept from a potential threat.

Despite the fact that the self-concept and resistance to health persuasion are closely intertwined, there has been a lack of theoretical framework for understanding the role of self-conception, specifically an individual's motivation to preserve a positive self-image, in health communication. The current research program fills this gap in the literature by addressing important self-conceptions that may be challenged in communicative interactions in health. In light of the notion that the self-system is composed of multiple self-domains (Crocker & Wolfe, 2001), this dissertation extends prior research that often times narrowly conceptualized the level of self-threat as personal relevance based on past engagement in unhealthy behaviors (Ditto & Lopez, 1992; Kunda, 1987; Liberman & Chaiken, 1992). The learning from this dissertation suggests that past unhealthy behaviors are not the only reason for the activation of self-defense motives in health communication. Individuals are vigilant to any information or cues that challenge their desired self-conception and, in turn, initiates ego-protective strategies. This dissertation offers some guidance for the identification and operationalization of individual differences in self-defense motives.

Theoretical mechanisms. Another major contribution of this dissertation work is that it clarifies theoretical mechanisms involved in circumventing the influence of self-defense motives. In social psychology, self-affirmation (Steele, 1988) has commonly been used to reduce the need for self-defense in a variety of contexts that involve a self-threat. As self-affirmation is one of many possible approaches, this dissertation proposed and tested two alternative ways that could be employed with the goal of reducing defensive resistance: (1) sidestepping resistance with value-expressive message framing and (2) distracting resistance with narratives. Examining specific mechanisms through which these approaches enhance persuasion, this dissertation contributes to further theoretical development in this area.

The Functional Theory of Attitude (Herek, 1986) argues that persuasive appeals addressing underlying reasons for an attitude are more effective than those fail to target such functions. Thus, research based on this theoretical perspective has primarily focused on developing functionally matched messages. For the purpose of sidestepping defensive resistance, however, the functional matching was not the mechanism that explained better persuasive outcomes. Instead, value-expressive messages enhanced persuasion by manipulating the functionality of attitudes toward a health behavior. For those who had ego-defensive attitudes toward a behavior, providing an opportunity to reframe the behavior as consistent with the pursuit of important personal values (i.e., making attitudes value-expressive) helped to sidestepping their defensive resistance.

Narrative approach has been recommended to overcome resistance to persuasion by reducing audience's attention to counter-attitudinal elements in a message (Slater & Rouner, 1996). Building upon this theoretical claim, the current research program further examined whether narratives could be useful for reducing audiences' motivation to self-defend when the story contains counter-attitudinal elements to their positive self-conception. This dissertation provides a complicated picture for understanding when and how narratives improve persuasion. But, the overall learning from this dissertation suggests that the narrative efficacy at overcoming defensive resistance likely involves the mechanisms that theoretically proposed to accompany the loss of self-awareness – transportation (Green & Brock, 2000) and identification (Cohen, 2001). This dissertation took the first step to identify the core elements of narrative experience that likely to reduce defensive resistance. The loss of self-awareness is one of the dimensions in the experience of transportation or identification. In future studies, it would be worthwhile to disentangle different narrative dimensions and to examine their implications for persuasion.

Combined, this dissertation clarifies research on the utility of value-expressive attitude function in health communication and narrative mechanisms for overcoming defensive resistance. The following section discusses theoretical and practical implications of the study findings and general limitations of this research program.

Implications for Health Communication Theory and Practice

Health Communication Theory

Collectively, the study results have implications for understanding (1) how audiences relate themselves to health narratives beyond their self-integrity concerns and (2) whether the proposed intervention strategies could be complementary to another.

Relating oneself to a negative stereotype. Media depiction of risk often changes individual's estimation of generalized risk to society, while having minimal impact on personal risk judgment (Tyler & Cook, 1984). Also, people tend to reject personal relevance of health information considering themselves less likely to experience negative health events than others (Weinstein, 1980). This tendency is more pronounced among those who engage in negative behaviors as a defensive adaptation (Sherman & Cohen, 2006). This dissertation thus examined the implications of autobiographic similarity with the narrative character (Chapter IV) and a biased self-view (unrealistic optimism; Chapter V) on deterring health persuasion.

Individuals with similar experiences were more likely to self-reference the story content, but they also engaged in more biased processing of a heath narrative. For these individuals, narrating through the victim's perspective was more disturbing than third-person narration, resulting in a lower level of transportation. Yet, instructing them to vicariously experience the narrative events overturned this pattern, thus enabling these individuals to recognize their risk

vulnerability. Also, first-person narration was more conducive to identifying with the character than third-person narration only when audiences were in the experiential motive.

Unrealistic optimists were more able to take the subjective experience of negative character as their own when a message was delivered as a personal testimonial than as an informational message; this interactive pattern was transferred onto perceived risk. At the same time, self-affirmation enhanced the efficacy of informational message at increasing identification and perceived risk among unrealistic optimists.

Combined, the evidence accumulated from this dissertation suggests that producing internalized responses to a health narrative could be disturbing for those with higher self-defense motives because of their past behaviors and/or desire to maintain a biased self-view. Narratives have the capability to reduce this resistance with an immersive form of mental processing which involves the loss of self-awareness, enabling audiences to loosen up their self-boundary and to experience the narrative events as their own. The effect of pre-reading instruction in Study 4.2 was conditional on audience's study-congruent memory and narrative perspective. More research is required to identify other conditions and methods that are conducive of transportation. Also, future studies should investigate whether there is a threshold for the level of transportation that is high enough to override audiences' defensive processing motives.

Sidestepping or removing the need for resistance. In addition to narrative approach, this dissertation also examined the efficacy of value-expressive message framing and self-affirmation at reducing resistance to health persuasion. This was in part intended to answer the question as to whether using multiple strategies would be more effective than taking a single approach. Because self-affirmation has been extensively investigated in social psychology, this dissertation looked at whether self-affirmation complements value-expressive message framing or narrative

approach often investigated in communication research. The short answer to this investigation is that it depends on both message type and its content—using alternative methods to reduce self-defense motives can even interfere with the positive effect of self-affirmation.

Consistent with central predictions of Self-Affirmation Theory (Steel, 1988), for those who concern stigmatization, self-affirmation enhanced their positive attitude and willingness to seek mental health treatment (Study 3.3). A significant interaction was also found between affirmation and two values advocated in the message conditions: for those affirmed, self-direction value message produced more positive attitude than health value message. This may suggest that self-affirmation and self-direction value messages could complement each other, but not when combined with a health value. In Study 5.1., self-affirmed unrealistic optimists perceived higher risk than their non-affirmed counterpart. This pattern was specific to informational messages, but not in response to narrative messages. Although speculative, self-affirmation may be complementary to health messages that prompt higher self-integrity concerns in terms of both content and message format (narrative versus non-narrative). As previously explained, narratives have the capability to reduce audiences' self-defense motives through transportation, thus self-affirmation could be an unnecessary addition. The difference between health and self-direction value messages may be driven by whether each value relates to the audience's important self-conception domains activated in response to a message addressing mental health treatment. Because young adults are sensitive to social self-presentation, they might have considered 'not viewed as unbalanced to others' as more important, relevant self-conception than 'being healthy'. These speculative explanations, however, warrant further research.

Health Communication Practice

This dissertation was based on the premise that individuals vary by the extent to which experience self-threat depending on whether or not the context relates to their important self-conception or themselves have higher risk standing, among many other factors. Three theory-derived strategies were examined as to whether they help reduce negative implications of these individual difference factors on health information processing and acceptance. Studies reported here in general support the notion that proposed strategies are effective under at least some conditions for those who are likely to be defensive to health information, thus making it important to identify these individuals and to tailor health messages to their characteristics.

However, identifying individuals with higher self-defense motives, which may not always be the at risk populations, is not a simple task for health practitioners in part because sources of self-threat differ by health contexts (even within an individual) as well as the difficulty with measuring self-defense motives. Researchers have developed scales to measure individual differences in resistance such as the Resistance to Persuasion Scale (perception about own persuasibility), the Bolster-Counterargue Scale (beliefs about strategies they use to resist) (Briñol, Rucker, Tormala, & Petty, 2004), Transportability (Dal Cin, Zanna, & Fong, 2004), and Psychological Reactance Scale (Hong & Page, 1989). Although a scale that captures individual propensity to self-defend would be idealistic to have for practitioners, given that self-defense motives are often activated unknowingly (Sherman & Cohen, 2006) and not accessible to individuals (Katz, 1960), such measurement may not accurately reflect the audience's tendency.

Instead, identifying individuals with 'biased' risk perception could be one feasible way that can be applied in practice considering empirical evidence cumulated around its negative impact on health promotion and information processing. Study 5.1. and few other studies (Klein et al., 2010; Radcliffe & Klein, 2002) offer insights into categorizing unrealistic optimists at the

individual level rather than looking at the group level bias. The development of new technologies and the Internet enables us to better identify the target audiences and deliver more tailored risk messages to their characteristics such as risk status (Rimal & Adkins, 2003).

General Limitations

Despite these practical and theoretical implications, several study limitations are worth noting. This dissertation addressed three health contexts relevant to college student samples considering the study target audiences that were available for this dissertation research. Like many other research based on student samples, the majority of study participants were White females. Due to this limitation, the study findings should be cautiously interpreted and applied to other populations and health contexts with different nature and demographic characteristics. For instance, there may be gender differences on the extent to which audiences respond defensively to health information. Yet, research findings addressing psychological mechanisms that lead to better persuasive outcomes are applicable to other health domains. For instance, the patterns of findings among unrealistic optimists reported in Study 5.1 are likely to be consistent across health domains that involve personal risk decisions.

The selection of health contexts was also intended to cover different sources of self-threat including participants' personal values and motivational goals (e.g., health, self-direction), personal experiences (autobiographic history), as well as the accuracy of their risk perception (unrealistic optimism). This is, however, not an exhaustive list of potential sources of self-threat. There may be other important reasons for the activation of self-defense motives in response to health messages and other ways to operationalize individual differences in defensiveness. Future work should develop a theoretical framework to systematically catalogue different origins of self-threat for the advancement of self-defense theory in health communication.

This dissertation also suffers from limitations common to any experimental study such as making a purposeful choice to limit the testing of theoretical constructs and intervention approaches. Yet, a single study cannot account for all possible variables and interventions. In future research, it would be meaningful to identify and examine other theoretical approaches and interventions to address resistance to health persuasion. Because the use of a single message is subject to certain limitations, one should be cautious in generalizing the study results. Future work should replicate the findings reported here with multiple message conditions.

Suggestions for Future Research

Resistance based on self-defense motives is worthy of examination in its own right – it is a critical component in deterring persuasion across a variety of message contexts. Although this dissertation addressed some important questions in this area, there are many other interesting areas where attention and research can be applied.

Taxonomies of Resistance

As mentioned in Chapter II, the term "resistance" has received dual definition in persuasion research either as a failed persuasion attempt or as a motivation to withstand the attempt. There has also been inconsistencies on how scholars categorize different types of resistance. For instance, Knowles and Linn (2004) suggested reactance, scrutiny, distrust, and inertia as four types of resistance, whereas inertial resistance and bolstering counterarguing resistance was proposed by Briñol et al. (2004). As Knowles and Linn (2004) noted, the diversity in taxonomies and definitions reflect the broad origin and utility of the research. However, developing meaningful taxonomies of resistance would benefit future investigation in this area. One possibility is to develop a taxonomy based on the origins of resistance. For instance, reactance (Brehm, 1966) is triggered in response to the external threat to one's freedom of

choice, whereas resistance based on self-integrity concerns is more intrinsic in nature. Different responses could be generated depending on the origins of threat; for example, reactance produces counterarguing and anger (Quick & Stephenson, 2007) as there is an identifiable target to react negatively, while responses to self-integrity threat may be primarily driven by avoidance tendency involving distancing strategies and selective attention. Future research should investigate this possibility.

Other Strategies to Reduce Resistance based on Self-Defense Motives

This dissertation examined three strategies that indirectly address resistance. Yet, there are potentially other approaches that can accomplish the goal to reduce self-defense motives. In light of the Extended Parallel Process Model (EPPM; Witte 1994) and Protection Motivation Theory (PMT; Rogers, 1975), one possibility is to enhance self-efficacy and response efficacy that enable audiences to take adaptive behaviors to control the danger. Whether or not an individual adopts coping appraisal (or the danger control route) should be closely related to the extent to which individuals perceive threat to their self-integrity. Thus, offering audiences with an opportunity to enhance their efficacy is likely to be effective for addressing audiences' feared possible self (Markus & Nurius, 1986) as well as the perceived actual-ought self-discrepancy (Higgins, 1987).

As a way to sidestep resistance, this dissertation used value-expressive messages that helped reframe a health behavior in a positive light for the audiences' self-conception. One similar approach would be to use gain framed messages (vs. loss frame; Tversky & Kahneman, 1981). Gain framed messages emphasize the positive outcomes that can be attained by following recommendations, whereas loss framed messages focus on the negative outcomes when audiences reject the recommendations (Rothman & Salovey, 1997). In a study that examined the

influence of self-affirmation on responses to gain versus loss framed antismoking messages, self-affirmation produced more favorable responses to loss-framed PSAs, while self-affirmation produced more unfavorable responses to gain-framed PSAs (Zhao & Nan, 2010). This pattern is similar to the results found in Study 5.1—the interaction between self-affirmation and narrative (vs. informational message). It is possible that only the loss frame, but not the gain frame, is associated with the self-integrity concerns. If this is the case, gain framed messages could be a useful way to address resistance based on self-defense motives. This should be empirically tested in future research.

Distinction between Transportation and Identification

This dissertation intended to examine specific mechanisms such as transportation and identification that produce persuasive outcomes through narrative experience. To this end, several antecedents of transportation (processing motive and message type) and identification (narrative perspective and autobiographic similarity) were examined in Chapters IV and V. Although the concept of identification somewhat overlaps with transportation, they are thought to be distinctive forms of narrative involvement (Sestir & Green, 2010). Identification is an involvement specific to a single character, whereas transportation is a general feeling of absorbed into a story environment (Sestir & Green, 2010). However, the theoretical relationship between transportation and identification has been unclear in the literature (Tal-Or & Cohen, 2010). Sestir and Green (2010) suggested that transportation and identification can occur without each counterpart (although identification without transportation is less likely) operating in concert, or each independently. Theoretically, it is possible that audiences are transported in to a story because they identify with a narrative character as it increases their narrative enjoyment (Tal-Or & Cohen, 2010). However, this is less likely to be the case for health narratives, which often

depict negative characters suffering from consequences of risky behaviors, because people tend to identify more strongly with positive characters but not with the negative ones (Sestir & Green, 2010). The link between the story and the negative self aspects may inhibit audiences' natural process of relating themselves to a character in health narratives. Based on this rationale, this dissertation treated antecedents of transportation (processing motive and message type) as preceding identification in hypotheses and conceptual models. However, this temporal causal ordering between transportation and identification should be confirmed in future research.

Several theorists have argued for the role of identification in trait activation (Sesir & Green, 2010) or belief change (de Graaf et al., 2011) over transportation because identification is character specific, whereas transportation reflects a more general state in narrative experience. Study 5.1 results seem to support this notion such that perceived risk change among unrealistic optimists depended on the extent to which they identified with the character. On the other hand, Study 4.2 found no direct association between identification and perceived risk; only transportation had a direct effect. The act of adopting the perspective of others increases the accessibility of self-conception (because it involves the projection of the self in other) and thus the self-other merge is largely based on positive self-traits (Davis, Conklin, Smith, & Luce, 1996). The role of identification is thus likely to be pronounced when narrative audiences have positive attitude toward health behaviors like alcohol-consumption. On the other hand, when a behavior is negatively perceived like study drug abuse, the effect of transportation may become more influential. This speculative explanation warrants further research.

Concluding Remarks

Due to the fundamental motivation to protect one's own perceived integrity and self-worth, we often find it difficult to face information that suggests our own vulnerability or that

reminds us of negative past-identities. This dissertation offers some clues, across three health contexts, for enabling us to become more open-minded to accept negative information that, although threatening, could ultimately improve the quality of our health decisions. Theoretically, this dissertation clarifies research on mechanisms of narrative persuasion and the utility of value-expressive attitude function that may contribute to further theoretical development in health communication. By specifying for whom and under which circumstances each approach is most useful for overcoming resistance based on self-defense motives, this dissertation also provides practitioners, educators, and interventionists with an expanded kit of persuasion tools for encouraging self-improvements in health.

APPENDIX 3A-1. STUDY 3.1 QUESTIONNAIRE

Thank you for agreeing to participate in the study. You will be asked a variety of questions about your personal values and beliefs about mental health service.

Texts in italics are not shown to the participant.

Personal Values

On a scale from 0 to 10 (0 = the value is of no importance at all; 10 = the value is of supreme importance), rate the importance of each value as a guiding principle in your life.

1. *Power value*
    - 1.1. SOCIAL POWER (control over others)
    - 1.2. AUTHORITY (the right to lead or command)
    - 1.3. WEALTH (material possessions, money)
    - 1.4. PRESERVING MY PUBLIC IMAGE (protecting my "face")
    - 1.5. SOCIAL RECOGNITION (respect, approval by others)
2. *Achievement value*
    - 2.1. SUCCESSFUL (achieving goals)
    - 2.2. CAPABLE (competent, effective, efficient)
    - 2.3. AMBITIOUS (hardworking, aspiring)
    - 2.4. INFLUENTIAL (having an impact on people and events)
    - 2.5. INTELLIGENT (logical, thinking)
    - 2.6. SELF-DISCIPLINE (self-restraint, resistance to temptation)
3. *Hedonism value*
    - 3.1. PLEASURE (gratification of desires)
    - 3.2. ENJOYING LIFE (enjoying food, sex, leisure, etc.)
4. *Stimulation value*
    - 4.1. DARING (seeking adventure, risk)
    - 4.2. A VARIED LIFE (filled with challenge, novelty, and change)
    - 4.3. AN EXCITING LIFE (stimulating experiences)
5. *Self-direction value*
    - 5.1. FREEDOM (freedom of action and thought)
    - 5.2. SELF-RESPECT (belief in one's own worth)
    - 5.3. CREATIVITY (uniqueness, imagination)
    - 5.4. INDEPENDENT (self-reliant, self-sufficient)
    - 5.5. CHOOSING OWN GOALS (selecting own purposes)
    - 5.6. CURIOUS (interested in everything, exploring)
6. *Universalism value*
    - 6.1. BROAD-MINDED (tolerant of different ideas and beliefs)

6.2. WISDOM (a mature understanding of life)
6.3. SOCIAL JUSTICE (correcting injustice, care for the weak)
6.4. EQUALITY (equal opportunity for all)
6.5. A WORLD AT PEACE (free of war and conflict)
6.6. A WORLD OF BEAUTY (beauty of nature and the arts)
6.7. UNITY WITH NATURE (fitting into nature)
6.8. PROTECTING THE ENVIRONMENT (preserving nature)

7. *Benevolence value*
   7.1. HELPFUL (working for the welfare of others)
   7.2. HONEST (genuine, sincere)
   7.3. FORGIVING (willing to pardon others)
   7.4. LOYAL (faithful to my friends, group)
   7.5. RESPONSIBLE (dependable, reliable)
   7.6. TRUE FRIENDSHIP (close, supportive friendship)
   7.7. MATURE LOVE (deep emotional and spiritual intimacy)
8. *Tradition value*
   8.1. HUMBLE (modest, self-effacing)
   8.2. ACCEPTING MY PORTION IN LIFE (submitting to life's circumstances)
   8.3. DEVOUT (holding to religious faith and belief)
   8.4. RESPECT FOR TRADITION (preservation of time-honored customs)
   8.5. MODERATE (avoiding extremes of feeling and action)
9. *Conformity value*
   9.1. POLITENESS (courtesy, good manners)
   9.2. HONORING OF PARENTS AND ELDERS (showing respect)
   9.3. OBEDIENT (dutiful, meeting obligations)
10. *Security value*
   10.1. FAMILY SECURITY (safety for loved ones)
   10.2. NATIONAL SECURITY (protection of my nation from enemies)
   10.3. SOCIAL ORDER (stability of society)
   10.4. CLEAN (neat, tidy)
   10.5. RECIPRICATION OF FAVORS (avoidance of indebtedness)
   10.6. SENSE OF BELONGING (feeling that others care about me)
   10.7. HEALTHY (not being sick physically or mentally)
11. *Other value*
   11.1. INNER HARMONY (at peace with myself)
   11.2. A SPIRITUAL LIFE (emphasis on spiritual not material matters)
   11.3. MEANING IN LIFE (a purpose in life)
   11.4. DETACHMENT (from worldly concerns)

Attitudes towards Psychiatric Help Seeking

For the next set of questions, you will be asked to report your thoughts on seeing a psychiatrist for depression treatment if you were experiencing symptoms of depression.

If I were experiencing symptoms of depression, a seeing a psychiatrist for depression treatment would be…

1. On a scale from 1 to 7, where 1 means "foolish" and 7 means "wise," please select the number that best reflects your feelings.
2. On a scale from 1 to 7, where 1 means "harmful" and 7 means "beneficial," please select the number that best reflects your feelings.
3. On a scale from 1 to 7, where 1 means "good" and 7 means "bad," please select the number that best reflects your feelings.
4. On a scale from 1 to 7, where 1 means "helpful" and 7 means "useless," please select the number that best reflects your feelings.
5. On a scale from 1 to 7, where 1 means "valuable" and 7 means "worthless," please select the number that best reflects your feelings.
6. On a scale from 1 to 7, where 1 means "pleasant" and 7 means "unpleasant," please select the number that best reflects your feelings.
7. On a scale from 1 to 7, where 1 means "enjoyable" and 7 means "unenjoyable," please select the number that best reflects your feelings.

Attitude Functions

On a scale from 1 to 7, where 1 means "not at all true of me" and 7 means "very true of me," how much do you agree with the following statements?

Experiential-schematic Function

1) My opinions about psychiatric help seeking mainly are based on my personal experiences with people whose family members or friends have received psychiatric treatment.
2) My opinions about psychiatric help seeking mainly are based on my personal experiences with receiving psychiatric treatment or other counseling services.
3) My opinions about psychiatric help seeking mainly are based on my personal experiences with hearing about psychiatric treatment or other counseling services.

Social-expressive Function

1) My opinions about psychiatric help seeking mainly are based on my perceptions of how the people I care about consider psychiatric treatment as a group
2) My opinions about psychiatric help seeking mainly are based on learning how those who received psychiatric treatment are viewed by the people whose opinions I most respect.
3) My opinions about psychiatric help seeking mainly are based on my perceptions of whether the people I care about would seek psychiatric treatment when they are in need.
4) My opinions about psychiatric help seeking mainly are based on my perceptions of how those who received psychiatric treatment would be treated by the people whose opinions I most respect.

Value-expressive Function

1) My opinions about psychiatric help seeking mainly are based on my personal values.

2) My opinions about psychiatric help seeking mainly are based on my beliefs about how things should be.
3) My opinions about psychiatric help seeking tell other people a lot about the kind of person I am.
4) My opinions about psychiatric help seeking express what I value most.

Ego-defensive Function

1) My opinions about psychiatric help seeking mainly are based on the fact that I would rather not think about seeking psychiatric treatment.
2) My opinions about psychiatric help seeking mainly are based on my personal feelings of discomfort or revulsion at seeking psychiatric treatment.
3) My opinions about psychiatric help seeking mainly are based on my personal feelings of uneasiness about myself for resorting to external help.
4) My opinions about psychiatric help seeking mainly are based on my personal feelings of discomfort or revulsion at being regarded as unbalanced by other people.
5) My opinions about psychiatric help seeking mainly are based on the fact that I would rather not think about myself in need of psychiatric treatment.

Utilitarian Function

1) My opinions about psychiatric help seeking mainly are based on my expectations about what I can expect to get from the treatment.
2) My opinions about psychiatric help seeking mainly are based on my expectation on the helpfulness of the treatment.
3) My opinions about psychiatric help seeking mainly are based on my expectation that I would experience acceptance and understanding in from the treatment.

Demographics

1. What is your age? *(Number box with range 18 to 99)*

2. Which of the following would you say best describes your gender?

   Male
   Female
   Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply.

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell?

   Freshman
   Sophomore
   Junior
   Senior

APPENDIX 3A-2. STUDY 3.2 QUESTIONNAIRE

Thank you for agreeing to participate in the study. In the first section, you will be asked to report your personal goals and thoughts on experiencing depressive symptoms.

Texts in italics are not shown to the participant.

Motivational Goals

On a scale from 1 to 7, where 1 means "strongly disagree" and 7 means "strongly agree," how much do you agree or disagree with the following statements?

Health Goal

1) I work very hard to take care of my health
2) Being healthy is one of the biggest goals in my life

Self-Direction Goal

1) I work very hard to be self-directed
2) Being self-directed is one of the biggest goals in my life

Public Image Protection Goal

1) I work very hard to preserve my public image
2) Protecting my public image is one of the biggest goals in my life

In the following section, you will be asked to read a short health message and answer to a set of questions. Please read carefully through the message to answer questions.

Health Value-Expressive Message Condition

Respondents were randomly assigned to one of three messages linking personal values to psychiatric help seeking. See Appendix 3B for other message conditions.

Help Yourself to be Healthy

Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. If you have a depressive disorder, you may feel exhausted, helpless and unhealthy. It may be extremely difficult to take any action to recover your health. But it is important to realize that these feelings are part of the depression and do not reflect who you really are. If you look closely inside yourself, you will see the part of you that *wants to be healthy*.

A number of effective treatments are available to help bring your mental health back. The first step to getting appropriate treatment is to visit a doctor or mental health professional. The doctor or mental health professional will conduct a complete diagnostic evaluation to

recommend the most effective combination of treatments which differs between individuals. It is therefore very important to approach a professional in deciding how best to cope with depression so that you could do whatever is necessary to maintain your health. When you are depressed, give yourself another chance to be healthy by seeking professional help.

Manipulation Check

On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," how much do you agree with the following statements about the message?

Health Value Expressive Message Content

1) The message emphasizes that people can take care of their health by seeking professional help when they are depressed
2) According to the message, people who care about their health should seek professional help when they are depressed

Self-Direction Value Expressive Message Content

1) The message emphasizes that people can be self-directed by seeking professional help when they are depressed
2) According to the message, people who want to be independent should seek professional help when they are depressed
3) The message is about the independence gained by seeking professional help for depression treatment
4) The message is about the self-respect gained by seeking professional help for depression treatment
5) The message is about the ability to choose own goals gained by seeking professional help for depression treatment
6) The message is about the self-reliance gained by seeking professional help for depression treatment
7) According to the message, people who care about self-respect should seek professional help when they are depressed
8) The message emphasizes that people can be independent by seeking professional help when they are depressed

Utilitarian Attitude Function Message Content

1) The message is about the benefits of seeking professional help for depression treatment
2) The message is about the mental health recovered by seeking professional help for depression treatment
3) The message is about what people can get from seeking professional help for depression treatment and
4) The message emphasizes the effectiveness of treatment people receive by seeking professional help when they are depressed

Goal Relevance

On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," how much do you agree with the following statements about the message?

Health Goal Relevance

1) Seeking professional help is useful for bringing people's health back when they experience symptoms of depression.
2) One way to help bring people's health back is to seeking professional help when they experience symptoms of depression.

Self-Direction Goal Relevance

1) Seeking professional help is useful for recovering people's self-respect when they experience symptoms of depression.
2) One way to help recover people's self-respect is to seeking professional help when they experience symptoms of depression.
3) Seeking professional help is useful for people becoming more self-directed when they experience symptoms of depression.
4) One way to help people become more self-directed is to seeking professional help when they experience symptoms of depression.

Attitudes towards Psychiatric Help Seeking

For the next set of questions, you will be asked to report your thoughts on seeing a psychiatrist for depression treatment if you were experiencing symptoms of depression.

If I were experiencing symptoms of depression, a seeing a psychiatrist for depression treatment would be…

1. On a scale from 1 to 7, where 1 means "foolish" and 7 means "wise," please select the number that best reflects your feelings.
2. On a scale from 1 to 7, where 1 means "harmful" and 7 means "beneficial," please select the number that best reflects your feelings.
3. On a scale from 1 to 7, where 1 means "good" and 7 means "bad," please select the number that best reflects your feelings.
4. On a scale from 1 to 7, where 1 means "helpful" and 7 means "useless," please select the number that best reflects your feelings.
5. On a scale from 1 to 7, where 1 means "valuable" and 7 means "worthless," please select the number that best reflects your feelings.
6. On a scale from 1 to 7, where 1 means "pleasant" and 7 means "unpleasant," please select the number that best reflects your feelings.
7. On a scale from 1 to 7, where 1 means "enjoyable" and 7 means "unenjoyable," please select the number that best reflects your feelings.

Cognitive Responses

Message Agreement. On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," overall how much do you agree or disagree with the message?

1	2	3	4	5
Strongly disagree				Strongly agree

Argument Strength. Is the reasons the message gave for seeking psychiatric help strong or weak reasons?

1	2	3	4	5
Very weak				Very Strong

Demographics

1. What is your age? *(Number box with range 18 to 99)*

2. Which of the following would you say best describes your gender?
   Male
   Female
   Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply.

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell?

   Freshman
   Sophomore
   Junior
   Senior

Debriefing Script

Thank you for participating in this study. You will be directed to a separate website where can write your NetID and last name for receiving extra credit.

The goal of this study is to learn whether specific message elements can help enhance students' positive attitudes toward seeking help for psychological problems, if they were to arise. Previous research suggests that messages that address underlying reasons for people's attitudes toward a behavior are more effective than those do not address those underlying reasons. The message used in this study attempts to match underlying functions of college students' attitudes toward psychiatric help seeking in an effort to increase the likelihood that students will seek help when

they need it. If you would like to learn more about the rationale behind this study, please feel free to contact the investigator Hyekyung Kim at hk646@cornell.edu or at 949-680-0862.
On occasion, students may experience significant episodes of depression or anxiety. Roommate conflicts, academic stress, relationship tension, financial stress, and adjustment issues are just some of the things that can contribute to feeling depressed or anxious.

Often, talking with a trusted friend, family member, or mentor can bring relief or help you put things in perspective. Other times, it helps to talk with a mental health professional. Gannett's Department of Counseling and Psychological Services (CAPS) offers individual and group counseling, psychiatric services, and drop-in hours at various campus locations. Some students come to Cornell having already faced depression, anxiety, or other mental health concerns. CAPS can also provide follow-up services and referrals for these students.

For more information about mental health at Cornell, please consult the following resources:

Gannett Health Services health advice by phone, available 24/7: 255-5155
Gannett Health Services online: www.gannett.cornell.edu
Health information about depression: http://www.gannett.cornell.edu/topics/depression/

APPENDIX 3A-3. STUDY 3.3 QUESTIONNAIRES

Study 3.3 Phase 1 Questionnaire

Thank you for agreeing to participate in the study. This study has TWO phases of data collection. In the first survey, you will be asked a variety of questions about your personal values and beliefs about mental health services. After completing the first survey, you will receive an email invitation that includes a link to another survey. You must complete both phases of the study to earn TWO SUSAN points for participation.

Texts in italics are not shown to the participant.

Motivational Goals

On a scale from 1 to 7, where 1 means "strongly disagree" and 7 means "strongly agree," how much do you agree or disagree with the following statements?

Health Goal

1) I work very hard to take care of my health
2) Being healthy is one of the biggest goals in my life
3) It is very important for me to be healthy
4) I really don't worry about my health (reversed).

Self-Direction Goal

1) I work very hard to be self-directed
2) Being independent is one of the biggest goals in my life
3) It is very important for me to choose my own goals
4) I really don't worry about being in charge of my life (reversed).
5) It is very important for me to be self-respective

Public Image Protection Goal

1) I work very hard to preserve my public image
2) Protecting my public image is one of the biggest goals in my life
3) It is very important for me to be socially recognized
4) I really don't worry about my public image (reversed).

Attitudes towards Psychiatric Help Seeking

For the next set of questions, you will be asked to report your thoughts on seeing a psychiatrist for depression treatment if you were experiencing symptoms of depression.

If I were experiencing symptoms of depression, a seeing a psychiatrist for depression treatment would be…

1. On a scale from 1 to 7, where 1 means "foolish" and 7 means "wise," please select the number that best reflects your feelings.
2. On a scale from 1 to 7, where 1 means "harmful" and 7 means "beneficial," please select the number that best reflects your feelings.
3. On a scale from 1 to 7, where 1 means "good" and 7 means "bad," please select the number that best reflects your feelings.
4. On a scale from 1 to 7, where 1 means "helpful" and 7 means "useless," please select the number that best reflects your feelings.
5. On a scale from 1 to 7, where 1 means "valuable" and 7 means "worthless," please select the number that best reflects your feelings.
6. On a scale from 1 to 7, where 1 means "pleasant" and 7 means "unpleasant," please select the number that best reflects your feelings.
7. On a scale from 1 to 7, where 1 means "enjoyable" and 7 means "unenjoyable," please select the number that best reflects your feelings.

Attitude Functions

Ego-Defensive Function

1) My opinions about psychiatric help seeking mainly are based on the fact that I would rather not think about seeking psychiatric treatment.
2) My opinions about psychiatric help seeking mainly are based on my personal feelings of discomfort or revulsion at seeking psychiatric treatment.
3) My opinions about psychiatric help seeking mainly are based on my personal feelings of uneasiness about myself for resorting to external help.
4) My opinions about psychiatric help seeking mainly are based on my personal feelings of discomfort or revulsion at being regarded as unbalanced by other people.
5) My opinions about psychiatric help seeking mainly are based on the fact that I would rather not think about myself in need of psychiatric treatment.

Value-Expressive Function

1) My opinions about psychiatric help seeking mainly are based on my personal values.
2) My opinions about psychiatric help seeking mainly are based on my beliefs about how things should be.
3) My opinions about psychiatric help seeking tell other people a lot about the kind of person I am.
4) My opinions about psychiatric help seeking express what I value most.

Risk Judgment

How likely is it that you personally will experience depressive symptoms between now and the end of the academic year?

1	2	3	4	5	6	7
Very unlikely						Very Likely

Demographics

1. What is your age? *(Number box with range 18 to 99)*

2. Which of the following would you say best describes your gender?

   Male
   Female
   Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply.

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell? *(year)*

   Freshman
   Sophomore
   Junior
   Senior

Thank you for participating in the first part of this study. To connect your first survey data to the second survey data, you are required to enter your Cornell NetID. This information will be used only to merge your data. In few days, you will receive an email invitation that includes a link to another survey.

Enter your NetID _____

Study 3.3 Phase 2 Questionnaire

Thanks for returning to complete this study. To connect your data from the first survey to the second survey, you are required to enter your Cornell NetID.

Enter your NetID: _____

In the first section, you will be asked to report thoughts about yourself.

Self-affirmation Condition

In this section, respondents were randomly assigned to either the self-affirmation condition or the no affirmation control condition. See Appendix 3C for the control condition.

Please choose one option in response to each statement, if you are not sure, choose the response that most closely reflects your thoughts. All of the questions reflect statements that many people would find desirable, but I want you to answer only in terms of whether the statement describes what you are like. Please be as honest and accurate as possible.

1 2 3 4 5
Very much like me Very much unlike me

1. Being able to come up with new and different ideas and ways of doing things is one of my strong points.
2. I am always curious about the world.
3. I value my ability to think critically.
4. I love to learn new things.
5. My friends value my good judgment.
6. I must stand up for what I believe in, even in the face of strong opposition.
7. I always finish what I start.
8. I always admit when I am wrong.
9. I'm never bored.
10. I love what I do.
11. There are people in my life who care as much about my feelings and well-being as they do about their own.
12. I go out of my way to cheer up people who appear down.
13. No matter what the situation, I am able to fit in.
14. I can express love to someone else.
15. I am never too busy to help a friend.
16. I really enjoy being part of a group.
17. I treat all people equally, regardless of who they might be.
18. One of my strengths is helping a group of people work well together even when they have their differences.

19. I am very good at planning group activities.
20. I work at my best when I am a member of a group.
21. I never seek vengeance.
22. I do not act as though I am a special person.
23. "Better safe than sorry" is one of my favorite mottoes.
24. I control my emotions.
25. I never get side tracked when I work.
26. I experience deep emotions when I see beautiful things.
27. At least once a day I stop and count my blessings.
28. Despite challenges, I always remain hopeful about the future.
29. I try to add some humor to whatever I do.
30. I am a spiritual person.
31. My friends can trust me.
32. I always try to keep my word.

In the following section, you will be asked to read a short message and answer to a set of questions. Please read carefully through the message to answer questions.

In this section, respondents were randomly assigned to one of three message conditions – two expressing a different value related to seeking help, and a third without value-expressive elements as a control group.

Health Value-Expressive Message Condition *(See Appendix 3B for other message conditions)*

Help Yourself to be Healthy

Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. If you have a depressive disorder, you may feel exhausted, helpless and unhealthy. It may be extremely difficult to take any action to recover your health. But it is important to realize that these feelings are part of the depression and do not reflect who you really are. If you look closely inside yourself, you will see the part of you that wants to be healthy.

A number of effective treatments are available to help bring your mental health back. The first step to getting appropriate treatment is to visit a doctor or mental health professional. The doctor or mental health professional will conduct a complete diagnostic evaluation to recommend the most effective combination of treatments which differs between individuals. It is therefore very important to approach a professional in deciding how best to cope with depression so that you could do whatever is necessary to maintain your health. When you are depressed, give yourself another chance to be healthy by seeking professional help.

Counterarguing

On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," how much do you agree or disagree with the following statements?

1. While reading the message, I sometimes found myself thinking of ways I disagreed with what was being presented.
2. I found myself looking for flaws in the way information was presented in the message.

Willingness to Seek Psychiatric Help

1 2 3 4 5 6 7
Very unlikely Very Likely

1. How likely would you be seeing a psychiatrist if you were to experience symptoms of depression?
2. If you had problems like those described in the message, would you go and see a psychiatrist?
3. I would seek help from a psychiatrist if I were experiencing symptoms of depression

1 2 3 4 5 6 7
Strongly disagree Strongly agree

4. The next time I experience symptoms of depression, I will try to seek psychiatric help.
5. If I experience symptoms of depression in the future, I plan to seek psychiatric help.
6. If I experience symptoms of depression in the future, I intend to seek psychiatric help.

Attitude towards Psychiatric Help Seeking

For the next set of questions, you will be asked to report your thoughts on seeing a psychiatrist for depression treatment if you were experiencing symptoms of depression.

If I were experiencing symptoms of depression, a seeing a psychiatrist for depression treatment would be…

1. On a scale from 1 to 7, where 1 means "foolish" and 7 means "wise," please select the number that best reflects your feelings.
2. On a scale from 1 to 7, where 1 means "harmful" and 7 means "beneficial," please select the number that best reflects your feelings.
3. On a scale from 1 to 7, where 1 means "good" and 7 means "bad," please select the number that best reflects your feelings.
4. On a scale from 1 to 7, where 1 means "helpful" and 7 means "useless," please select the number that best reflects your feelings.
5. On a scale from 1 to 7, where 1 means "valuable" and 7 means "worthless," please select the number that best reflects your feelings.
6. On a scale from 1 to 7, where 1 means "pleasant" and 7 means "unpleasant," please select the number that best reflects your feelings.

On a scale from 1 to 7, where 1 means "enjoyable" and 7 means "unenjoyable," please select the number that best reflects your feelings.

Injunctive and Descriptive Norm

1 2 3 4 5 6 7
Strongly disapprove Strongly Approve

1. How do you think your close friends would feel about you seeing a psychiatrist for a problem like depression?
2. How do you think your roommates or housemates would feel about you seeing a psychiatrist for a problem like depression?
3. How do you think your family members would feel about you seeing a psychiatrist for a problem like depression?

1 2 3 4 5 6 7
Very unlikely Very likely

4. How likely is it that your close friends would seek psychiatric help for a problem like depression?
5. How likely is it that your roommates or housemates would seek psychiatric help for a problem like depression?
6. How likely is it that members of your family would seek psychiatric help for a problem like depression?
7. How likely is it that the typical Cornell student would seek psychiatric help for a problem like depression?

Enter your NetID and Last Name to receive SUSAN points: _____

Debriefing Script

Thank you for participating in this study. The goal of this study is to learn whether specific message elements can help enhance students' positive attitudes toward seeking help for psychological problems, if they were to arise. Previous research suggests that messages that address underlying reasons for people's attitudes toward a behavior are more effective than those do not address those underlying reasons. The message used in this study attempts to match underlying functions of college students' attitudes toward psychiatric help seeking in an effort to increase the likelihood that students will seek help when they need it. If you would like to learn more about the rationale behind this study, please feel free to contact the investigator Hyekyung Kim at hk646@cornell.edu or at 949-680-0862.
On occasion, students may experience significant episodes of depression or anxiety. Roommate conflicts, academic stress, relationship tension, financial stress, and adjustment issues are just some of the things that can contribute to feeling depressed or anxious.

Often, talking with a trusted friend, family member, or mentor can bring relief or help you put things in perspective. Other times, it helps to talk with a mental health professional. Gannett's Department of Counseling and Psychological Services (CAPS) offers individual and group counseling, psychiatric services, and drop-in hours at various campus locations. Some students come to Cornell having already faced depression, anxiety, or other mental health concerns. CAPS can also provide follow-up services and referrals for these students.

When you leave this lab, I highly encourage you to take brochures that give information about dealing with depression.

For more information about mental health at Cornell, please consult the following resources:

> Gannett Health Services health advice by phone, available 24/7: 255-5155
> Gannett Health Services online: www.gannett.cornell.edu
> Health information about depression: http://www.gannett.cornell.edu/topics/depression/

APPENDIX 3B. STUDY 3.2 & STUDY 3.3 MESSAGE CONDITIONS

1. Health Value-Expressive Message (188 words)

Help Yourself to be Healthy

Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. If you have a depressive disorder, you may feel exhausted, helpless *and unhealthy*. It may be extremely difficult to *take any action to recover your health*. But it is important to realize that these feelings are part of the depression and do not reflect who you really are. If you look closely inside yourself, you will see the part of you that *wants to be healthy*.

A number of effective treatments are available *to help bring your mental health back*. The first step to getting appropriate treatment is to visit a doctor or mental health professional. The doctor or mental health professional will conduct a complete diagnostic evaluation to recommend the most effective combination of treatments which differs between individuals. It is therefore very important to approach a professional in deciding how best to cope with depression *so that you could do whatever is necessary to maintain your health. When you are depressed, give yourself another chance to be healthy by seeking professional help.*

2. Self-Direction Value-Expressive Message (197 words)

Help Yourself to be Self-directed

Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. If you have a depressive disorder, you may feel exhausted, helpless and *lack of self-respect*. It may be extremely difficult to *take any action to be self-directed on your academic and personal life*. But it is important to realize that these feelings are part of the depression and do not reflect who you really are. If you look closely inside yourself, you will see the part of you that *wants to be more self-reliant*.

A number of effective treatments are available *to be more self-directed*. The first step to getting appropriate treatment is to visit a doctor or mental health professional. The doctor or mental health professional will conduct a complete diagnostic evaluation to recommend the most effective combination of treatments which differs between individuals. It is therefore very important to approach a professional in deciding how best to cope with depression *to recover your self-respect*. *Nobody can be held accountable for your life. Only you can choose what is best for you. It's the independent choice to reach out for professional help.*

3. Control Condition without Value-Expressive Element (129 words)

Help Yourself when Your are Depressed

Everyone occasionally feels blue or sad, but these feelings are usually fleeting and pass within a couple of days. If you have a depressive disorder, you may feel exhausted, helpless and hopeless. It may be extremely difficult to take any action to help yourself. But it is important to realize that these feelings are part of depression.

A number of effective treatments are available for depression. The first step to getting appropriate treatment is to visit a doctor or mental health professional. The doctor or mental health professional will conduct a complete diagnostic evaluation to recommend the most effective combination of treatments which differs between individuals. It is therefore very important to approach a professional in deciding how best to cope with depression.

APPENDIX 3C. NO AFFIRMATION CONTROL CONDITION

The following questions are designed to measure the way in which people make judgments about the personal strengths of other people. Please answer the following questions thinking about the qualities **David Beckham** holds. Please choose one option in response to each statement. For some items you may not be sure; however, we are interested in the way in which you guess, so please choose the response that most closely reflects your thoughts. All of the questions reflect statements that many people would find desirable, but we want you to answer only in terms of whether the statement describes what David Beckham is like.

We would like to rate David Beckham on the following attributes, guessing where you are not sure. Please be as honest and accurate as possible.

1	2	3	4	5
Very much like him			Very much unlike him	

1. Being able to come up with new and different ideas and ways of doing things is one of his strong points.
2. He is always curious about the world.
3. He values his ability to think critically.
4. He loves to learn new things.
5. His friends value his good judgment.
6. He must stand up for what he believes in, even in the face of strong opposition.
7. He always finishes what he starts.
8. He always admits when he is wrong.
9. He is never bored.
10. He loves what he does.
11. There are people in his life who care as much about his feelings and well-being as they do about their own.
12. He goes out of his way to cheer up people who appear down.
13. No matter what the situation, he is able to fit in.
14. He can express love to someone else.
15. He is never too busy to help a friend.
16. He really enjoys being part of a group.
17. He treats all people equally, regardless of who they might be.
18. One of his strengths is helping a group of people work well together even when they have their differences.
19. He is very good at planning group activities.
20. He works at his best when he is a member of a group.
21. He never seeks vengeance.
22. He does not act as though he is a special person.
23. “Better safe than sorry” is one of his favorite mottoes.

24. He controls his emotions.
25. He never gets side tracked when he works.
26. He experiences deep emotions when he sees beautiful things.
27. At least once a day he stops and counts his blessings.
28. Despite challenges, he always remains hopeful about the future.
29. He tries to add some humor to whatever he does.
30. He is a spiritual person.
31. His friends can trust him.
32. He always tries to keep his word.

APPENDIX 4A-1. STUDY 4.1 QUESTIONNAIRE

Thank you for agreeing to participate in the study. You will be asked to read a short story and answer to a set of questions.

Respondents were randomly assigned to one of two narrative conditions – one story written in the first-person perspective and another in the third-person perspective.

First person perspective condition *(see Appendix 4B for the third person condition)*

> I opened my eyes. I was laying on an emergency room gurney. My roommate, Sarah, was leaning over me. "Maggie, are you ok? You collapsed in the bathroom. I called 911! What did you take?"
>
> "I just took something to help me study," I whispered.
>
> It started finals week of my junior year. I've always gotten "As" I think I'm pretty motivated to do well. After pulling two all-nighters, I couldn't concentrate on the work I still had to do. I was really stressed out.
>
> A classmate told me about performance enhancing drugs like Ritalin and Adderall. Kind of like steroids, but for studying. The first time I took it, I panicked. I felt accelerated, I was talking too fast — people noticed. "What are you on?" was the question of the day. Since that day, I took it for school or for important activities, like job interviews, because my grades and career depended on it. With the drug, I was more driven. I focused. I wasn't distracted by anything else.
>
> At first, taking the pills seemed okay. But then I started having trouble falling asleep. I started noticing unusual changes in my behavior like occasionally having the jitters. I thought I should stop using the pills – but I couldn't. There was no way I could get things done without the pills.
>
> Last night was one of the worst 13 hours of my life. I had a big test coming up; so I took Adderall. I felt out of it the whole day. I couldn't fall asleep and had the worst headache ever. My heart raced; I was sweating, and I was dizzy and nauseous. I remember going in the bathroom. The next thing I remember was in the ER... The nurse just said they called my parents. What am I going to say to them?

Identification

1	2	3	4	5	6	7
Not at all						Very much

1. While reading the story, I felt as if I was part of the action.
2. While reading the story, I forgot myself and was fully absorbed.

3. I was able to understand the events in the story in a manner similar to that in which the main character understood them.
4. I think I have a good understanding of the main character.
5. I tend to understand the reasons why the main character does what she does.
6. While reading the story I could feel the emotions the main character portrayed.
7. During reading, I felt I could really get inside the main character's head.
8. At key moments in the story, I felt I knew exactly what the main character was going through.
9. While reading the story, I wanted the main character to succeed in achieving her goals.
10. When the main character succeeded I felt joy, but when she failed, I was sad.

Self-Referencing

1 2 3 4 5 6 7
Not at all Very much

1. How much did this story make you think about you and your experiences?
2. How much did you think about what it would be like if the events shown in the story happened to you?
3. To what extent did you think the story related to you personally?
4. To what extent were you reminded of your experiences while reading the story?

Autobiographic Similarity.

1. Have you ever had a prescription written by a medical professional for you for an Attention Deficit Disorder (ADD) drug such as Ritalin, Adderall? (1=yes or 0= no)
2. How many times have you used ADD drugs (e.g., Ritalin, Adderall)?
   Write the number of times (if none, write "0"): _____
3. How often have you used ADD drugs (e.g., Ritalin, Adderall) to study or to improve your concentration? (1=never; 5= very often)
4. How often have you been tempted to use ADD drugs (e.g., Ritalin, Adderall) to study or to improve your concentration? (1=never; 5= very often)
5. Do you know anybody who has ADD drugs (e.g., Ritalin, Adderall)? (1= none, 5 = many people)
6. How often have you heard of or seen others using ADD drugs (e.g., Ritalin, Adderall) to study or to improve concentration? (1=never; 5= very often)
7. How often have you consumed caffeinated drinks (e.g., coffee, Red Bull) to help you study or to complete an assignment? (1=never; 5= very often)
8. Have you ever had a medical problem when you used ADD drugs? (0=none, 1=minor, 5= major)

Demographics

1. What is your age? *(Number box with range 18 to 99) (age)*

2. Which of the following would you say best describes your gender? *(gender)*
   Male
   Female

Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply. *(race)*

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell? *(year)*
   Freshman
   Sophomore
   Junior
   Senior

APPENDIX 4A-2. STUDY 4.2 QUESTIONNAIRE

Thank you for agreeing to participate in the study. In the first section, you will be asked to read a short story and answer to a set of questions.

Reading goal instruction

In this section, participants were given one of two written instructions on how to read the story

1. *Experiential Motive.* When you read the story, try to put yourselves into the story by focusing on the events as if you were inside the story itself.

2. *Analytical Motive.* When you read the story, try to think carefully about the arguments, statements and beliefs the characters and settings seem to depict.

Then, respondents were randomly assigned to one of two narrative conditions – one story written in the first-person perspective and another in the third-person perspective.

First person perspective condition *(see Appendix 4B for the third person condition)*

I opened my eyes. I was laying on an emergency room gurney. My roommate, Sarah, was leaning over me. "Maggie, are you ok? You collapsed in the bathroom. I called 911! What did you take?"

"I just took something to help me study," I whispered.

It started finals week of my junior year. I've always gotten "As" I think I'm pretty motivated to do well. After pulling two all-nighters, I couldn't concentrate on the work I still had to do. I was really stressed out.

A classmate told me about performance enhancing drugs like Ritalin and Adderall. Kind of like steroids, but for studying. The first time I took it, I panicked. I felt accelerated, I was talking too fast — people noticed. "What are you on?" was the question of the day. Since that day, I took it for school or for important activities, like job interviews, because my grades and career depended on it. With the drug, I was more driven. I focused. I wasn't distracted by anything else.

At first, taking the pills seemed okay. But then I started having trouble falling asleep. I started noticing unusual changes in my behavior like occasionally having the jitters. I thought I should stop using the pills – but I couldn't. There was no way I could get things done without the pills.

Last night was one of the worst 13 hours of my life. I had a big test coming up; so I took Adderall. I felt out of it the whole day. I couldn't fall asleep and had the worst headache ever. My heart raced; I was sweating, and I was dizzy and nauseous. I remember going in the

bathroom. The next thing I remember was in the ER... The nurse just said they called my parents. What am I going to say to them?

Transportation

1 2 3 4 5 6 7
Not at all Very much

1. While I was reading the narrative, I could easily picture the events in it taking place.
2. While I was reading the narrative, activity going on in the room around me was on my mind. (*R*)
3. I could picture myself in the scene of the events described in the narrative.
4. I was mentally involved in the narrative while reading it.
5. After finishing the narrative, I found it easy to put it out of my mind. (*R*)
6. I wanted to learn how the narrative ended.
7. The narrative affected me emotionally.
8. I found myself thinking of ways the narrative could have turned out differently.
9. I found my mind wandering while reading the narrative. (*R*)
10. The events in the narrative are relevant to my everyday life.
11. The events in the narrative have changed my life.
12. While reading the narrative I had a vivid image of Maggie.

Identification

1 2 3 4 5 6 7
Not at all Very much

1. While reading the story, I felt as if I was part of the action.
2. While reading the story, I forgot myself and was fully absorbed.
3. I was able to understand the events in the story in a manner similar to that in which the main character understood them.
4. I think I have a good understanding of the main character.
5. I tend to understand the reasons why the main character does what she does.
6. While reading the story I could feel the emotions the main character portrayed.
7. During reading, I felt I could really get inside the main character's head.
8. At key moments in the story, I felt I knew exactly what the main character was going through.
9. While reading the story, I wanted the main character to succeed in achieving her goals.
10. When the main character succeeded I felt joy, but when she failed, I was sad.

Self-referencing

1 2 3 4 5 6 7
Not at all Very much

1. How much did this story make you think about you and your experiences?

2. How much did you think about what it would be like if the events shown in the story happened to you?
3. To what extent did you think the story related to you personally?
4. To what extent were you reminded of your experiences while reading the story?

Negative Anticipated Affect

1 2 3 4 5 6 7
Definitely no Definitely yes

If I take performance enhancing drugs without a prescription, I would feel …

1. Regret
2. Guilty
3. Gloomy
4. Scared
5. Paranoid
6. Weary
7. Embarrassed
8. Frustrated
9. Anxious
10. Fearful
11. Panic

Perceived Risk

1. If I take performance enhancing drugs without a prescription, my chance of experiencing health consequences as depicted in the story would be… (1 = almost zero to 7 = almost certain).
2. If I take performance enhancing drugs without a prescription, I would feel that I'm going to experience health consequences as depicted in the story (1= strongly disagree; 7= strongly agree)
3. If I take performance enhancing drugs without a prescription, I would feel very vulnerable to experience health consequences as depicted in the story

Biased Processing

On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," how much do you agree with the following statements?

1. The story was boring
2. The story was overstated
3. The story was exaggerated
4. The story was distorted
5. The story was untrue
6. The story was overblown
7. I thought the story tried to manipulate my feelings
8. While I read the story, I felt it was not very truthful
9. While I read the story, I felt exploited

Autobiographic Similarity.

9. Have you ever had a prescription written by a medical professional for you for an Attention Deficit Disorder (ADD) drug such as Ritalin, Adderall? (1=yes or 0= no)
10. How many times have you used ADD drugs (e.g., Ritalin, Adderall)? Write the number of times (if none, write "0"): _____
11. How often have you used ADD drugs (e.g., Ritalin, Adderall) to study or to improve your concentration? (1=never; 5= very often)
12. How often have you been tempted to use ADD drugs (e.g., Ritalin, Adderall) to study or to improve your concentration? (1=never; 5= very often)
13. Do you know anybody who has ADD drugs (e.g., Ritalin, Adderall)? (1= none, 5 = many people)
14. How often have you heard of or seen others using ADD drugs (e.g., Ritalin, Adderall) to study or to improve concentration? (1=never; 5= very often)
15. How often have you consumed caffeinated drinks (e.g., coffee, Red Bull) to help you study or to complete an assignment? (1=never; 5= very often)
16. Have you ever had a medical problem when you used ADD drugs? (0=none, 1=minor, 5= major)

Demographics

1. What is your age? *(Number box with range 18 to 99) (age)*

2. Which of the following would you say best describes your gender? *(gender)*
   Male
   Female
   Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply. *(race)*

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell? *(year)*
   Freshman
   Sophomore
   Junior
   Senior

APPENDIX 4B. NARRATIVE PERSPECTIE CONDITIONS

1. First Person Perspective Condition (305 words)

I opened my eyes. I was laying on an emergency room gurney. My roommate, Sarah, was leaning over me. "Maggie, are you ok? You collapsed in the bathroom. I called 911! What did you take?"

"I just took something to help me study," I whispered.

It started finals week of my junior year. I've always gotten "As" I think I'm pretty motivated to do well. After pulling two all-nighters, I couldn't concentrate on the work I still had to do. I was really stressed out.

A classmate told me about performance enhancing drugs like Ritalin and Adderall. Kind of like steroids, but for studying. The first time I took it, I panicked. I felt accelerated, I was talking too fast — people noticed. "What are you on?" was the question of the day. Since that day, I took it for school or for important activities, like job interviews, because my grades and career depended on it. With the drug, I was more driven. I focused. I wasn't distracted by anything else.

At first, taking the pills seemed okay. But then I started having trouble falling asleep. I started noticing unusual changes in my behavior like occasionally having the jitters. I thought I should stop using the pills – but I couldn't. There was no way I could get things done without the pills.

Last night was one of the worst 13 hours of my life. I had a big test coming up; so I took Adderall. I felt out of it the whole day. I couldn't fall asleep and had the worst headache ever. My heart raced; I was sweating, and I was dizzy and nauseous. I remember going in the bathroom. The next thing I remember was in the ER... The nurse just said they called my parents. What am I going to say to them?

2. Third Person Perspective Condition (309 words)

Maggie opened her eyes. She was laying on an emergency room gurney. Her roommate, Sarah, was leaning over her. "Maggie, are you ok? You collapsed in the bathroom. I called 911! What did you take?"

"I just took something to help me study," Maggie whispered.

It started finals week of her junior year. Maggie had always gotten "As" She had been pretty motivated to do well. After pulling two all-nighters, she couldn't concentrate on the work she still had to do. She was really stressed out.

A classmate told Maggie about performance enhancing drugs like Ritalin and Adderall. Kind of like steroids, but for studying. The first time she took it, she panicked. She felt accelerated, she was talking too fast — people noticed. "What are you on?" was the question of the day. Since that day, she took it for school or for important activities, like job interviews, because she thought her grades and career depended on it. With the drug, she was more driven. She focused. She wasn't distracted by anything else.

At first, taking the pills seemed okay. But then she started having trouble falling asleep. She started noticing unusual changes in her behavior like occasionally having the jitters. She thought she should stop using the pills – but she couldn't. There was no way she could get things done without the pills.

Last night was one of the worst 13 hours of Maggie's life. She had a big test coming up; so she took Adderall. She felt out of it the whole day. She couldn't fall asleep and had the worst headache ever. Her heart raced; she was sweating, and she was dizzy and nauseous. She went in the bathroom. The next thing she remembers was in the ER... The nurse just said they called her parents. "What am I going to say to them?" Maggie muttered.

APPENDIX 5A. STUDY 5.1 QUESTIONNAIRES

Study 5.1 Phase 1 Survey Instrument

Thank you for agreeing to participate in the study. This study has TWO phases of data collection. In the first survey, you will be asked a variety of questions about your alcohol consumption patterns, personal beliefs about alcohol, and drinking history. After completing the first survey, you will receive an email invitation that includes a link to another survey. You must complete both phases of the study to earn TWO SUSAN points for participation.

Risk Judgment

1. How likely is it that *you personally* will experience the negative consequences of drinking between now and the end of the academic year? (1 = Very unlikely; 7 = Very Likely)
2. How likely is it that *the average Cornell student* will experience the negative consequences of drinking between now and the end of the academic year? (1 = Very unlikely; 7 = Very Likely)
3. Given my current alcohol consumption patterns, I would feel that I'm going to experience the negative consequences of drinking
4. Given my current alcohol consumption patterns, I would feel very vulnerable to experience the negative consequences of drinking

Daily Drinking & Frequency-quantity Questionnaire

1. How many days in the past 2 weeks did you drink 5 units [for female, 4 units] of alcohol or more on one drinking occasion? (one standard drink is equal to 12 oz of beer, 5 oz of wine or 1 oz of distilled spirits)

   Number of day(s): _____

2. Thinking of *a typical week* in the last 30 days, try to remember as accurately as you can how long you typically drank each day of the week. For each day of the week, indicate how many hours you typically consumed alcohol on that day. If you did not drink that day, enter "0"

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

3. For each day of the week above that you indicated drinking 1 or more hours, please indicate below *the number of drink(s)* you typically consumed on that day. (one standard drink is equal to 12 oz of beer, 5 oz of wine or 1 oz of distilled spirits)

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Rutgers Alcohol Problem Index (RAPI)

Different things happen to people while they are drinking alcohol or because of their alcohol drinking. Several of these things are listed below. Indicate how many times each of these things happened to you within the last year. How many times has this happened to you while you were drinking or because of your drinking during the last year? (0 = None; 1 = 1-2 times; 2 = 3-5 times; 3 = More than 5 times)

1. Not able to do your homework or study for a test
2. Got into fights with other people (friends, relatives, strangers)
3. Missed out on other things because you spent too much money on alcohol
4. Went to work or school high or drunk
5. Caused shame or embarrassment to someone
6. Neglected your responsibilities
7. Relatives avoided you
8. Felt that you needed more alcohol than you used to in order to get the same effect
9. Tried to control your drinking (tried to drink only at certain times of the day or in certain places, that is, tried to change your pattern of drinking)
10. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking
11. Noticed a change in your personality
12. Felt that you had a problem with alcohol
13. Missed a day (or part of a day) of school or work
14. Wanted to stop drinking but couldn't
15. Suddenly found yourself in a place that you could not remember getting to
16. Passed out or fainted suddenly
17. Had a fight, argument or bad feeling with a friend
18. Had a fight, argument or bad feeling with a family member
19. Kept drinking when you promised yourself not to
20. Felt you were going crazy
21. Had a bad time
22. Felt physically or psychologically dependent on alcohol
23. Was told by a friend, neighbor or relative to stop or cut down drinking

Risk Factors

How often do you engage in the following activities? (1 = never, 4 = always)

1. Drinking on an empty stomach
2. Drinking when you are run down or tired
3. Playing drinking games
4. Drinking shots and/or mixed drinks

Demographics

1. What is your age? *(Number box with range 18 to 99)*

2. Which of the following would you say best describes your gender?
   Male
   Female
   Transgender

3. Which of the following would you say best describes your race or ethnicity? Check all that apply.

   White or Caucasian
   Black or African American
   Hispanic or Latino
   Asian or Asian American
   American Indian or Alaska Native
   Native Hawaiian or Other Pacific Islander
   Multiple Races/Ethnicities
   Other

4. Which of the following best describes your class standing at Cornell? *(year)*
   Freshman
   Sophomore
   Junior
   Senior

5. What type of residence do you live in? (residence)

   Dormitory
   Greek housing
   Off-campus house or apartment with single occupancy
   Off-campus house or apartment with 2-4 roommates or housemates
   Off-campus house or apartment with 5 or more roommates or housemates

6. Are you a member of any of the following groups?

   Varsity athletic team (athlete)
   Fraternity/ Sorority (greek)
   Spiritual or religious student organization (relig)
   Intramural athletic organization (intramural)
   International student organization (internorg)
   Community service organization (service)

7. How tall are you without shoes? Please type in the number of feet and inches separately. For example, if you are 6'0" tall, type 6 in the feet box and 0 in the inches box.

   Feet (Number box with range 2 to 7)
   Inches (Number box with range 0 to 11)

8. How much do you weigh without shoes?

   Pounds (Number box with range 50 to 500)

Study 5.1 Phase 2 Experiment Instrument

Thanks for returning to complete this study. To connect your data from the first survey to the second survey, you are required to enter your Cornell NetID.

Enter your NetID: _____

In the first section, you will be asked to report thoughts about yourself.

Self-affirmation Manipulation

In this section, respondents were randomly assigned to either the self-affirmation condition or no affirmation condition (the same as Study 3.3; see Appendix 3C for the control condition).

Please choose one option in response to each statement, if you are not sure, choose the response that most closely reflects your thoughts. All of the questions reflect statements that many people would find desirable, but I want you to answer only in terms of whether the statement describes what you are like. Please be as honest and accurate as possible.

1 2 3 4 5
Very much like me Very much unlike me

1. Being able to come up with new and different ideas and ways of doing things is one of my strong points.
2. I am always curious about the world.
3. I value my ability to think critically.
4. I love to learn new things.
5. My friends value my good judgment.
6. I must stand up for what I believe in, even in the face of strong opposition.
7. I always finish what I start.
8. I always admit when I am wrong.
9. I'm never bored.
10. I love what I do.
11. There are people in my life who care as much about my feelings and well-being as they do about their own.
12. I go out of my way to cheer up people who appear down.
13. No matter what the situation, I am able to fit in.
14. I can express love to someone else.
15. I am never too busy to help a friend.
16. I really enjoy being part of a group.
17. I treat all people equally, regardless of who they might be.
18. One of my strengths is helping a group of people work well together even when they have their differences.
19. I am very good at planning group activities.
20. I work at my best when I am a member of a group.
21. I never seek vengeance.

22. I do not act as though I am a special person.
23. "Better safe than sorry" is one of my favorite mottoes.
24. I control my emotions.
25. I never get side tracked when I work.
26. I experience deep emotions when I see beautiful things.
27. At least once a day I stop and count my blessings.
28. Despite challenges, I always remain hopeful about the future.
29. I try to add some humor to whatever I do.
30. I am a spiritual person.
31. My friends can trust me.
32. I always try to keep my word.

In the following section, you will be asked to read a short message and answer to a set of questions. Please read carefully through the message to answer questions.

Respondents were randomly assigned to one of three conditions – (1) narrative message condition, (2) informational message condition, or (3) no message control condition.

Narrative Message Condition *(see Appendix 5B for the informational message condition)*

I first began drinking when I was 15. I'd go out to a party with a couple of cans, usually two or three, and sit back, chat or dance the night away. During my first year at Cornell, I continued to go out more often; one, two or three cans turned into much more, sometimes even a bottle of alcohol a night without any non-alcohol drinks in between or any mixers. I sometimes joined a party on an empty stomach, even when I was running down or tired, so that I could be in a better mood. Drinking was the easiest way to manage my feelings. At parties, my friends and I enjoyed drinking games and took turns of liquor shots to reach a good buzz faster.

At the time, I never realized that drinking was really a problem. It's fun, and I believed that all of my friends and any other college students did the same to have fun. I didn't realize how this kind of misperception was influencing my own behavior.

I'd go out once or twice a weekend, and soon enough the amount of alcohol I was drinking was paying a price on my body. I sometimes passed out suddenly or violently vomited everywhere. I did get my fair share of hangovers. Most of my weekends, I had to do homework or study for a test, but I was unable to complete work to my full ability because of the worst hangover, and often had to spend the next day in bed.

Some days, my friends would remind me of things that I did throughout the night; things that I wouldn't normally do and couldn't even remember. I remember little of my last Friday night, except that I was drinking vodka shooters in a friend's room and having a good time. My friends say that we all walked out across the campus, searching for another party. But, somehow I woke up hours later, lying in a bed in the emergency room, smelling of vomit and alcohol.

It scared me. What if something happened that I had no control over simply because I was too drunk to notice or even care?

Transportation

1	2	3	4	5	6	7
Not at all						Very much

1. While I was reading the narrative [message], I could easily picture the events in it taking place.
2. While I was reading the narrative [message], activity going on in the room around me was on my mind. (*R*)
3. I could picture myself in the scene of the events described in the narrative [message].
4. I was mentally involved in the narrative [message] while reading it.
5. After finishing the narrative [message], I found it easy to put it out of my mind. (*R*)
6. I wanted to learn how the narrative [message] ended.
7. The narrative [message] affected me emotionally.
8. I found myself thinking of ways the narrative [message] could have turned out differently.
9. I found my mind wandering while reading the narrative [message]. (*R*)
10. The events in the narrative [message] are relevant to my everyday life.
11. The events in the narrative [message] have changed my life.
12. While reading the narrative [message] I had a vivid image of the character [the person described].

Identification

1	2	3	4	5	6	7
Not at all						Very much

1. While reading the story [message], I felt as if I was part of the action.
2. While reading the story [message], I forgot myself and was fully absorbed.
3. I was able to understand the events in the story [message] in a manner similar to that in which the main character [the person described in the message] understood them.
4. I think I have a good understanding of the main character [the person described in the message].
5. I tend to understand the reasons why the main character [the person described in the message] does what s/he does.
6. While reading the story [message] I could feel the emotions the main character [the person described in the message] portrayed.
7. During reading, I felt I could really get inside the main character's head [the person's head described in the message]
8. At key moments in the story [message], I felt I knew exactly what the main character [the person described in the message] was going through.
9. While reading the story [message], I wanted the main character [the person described in the message] to succeed in achieving his/her goals.
10. When the main character [the person described in the message] succeeded I felt joy, but when s/he failed, I was sad.

Self-referencing

1	2	3	4	5	6	7
Not at all						Very much

1. How much did this story [message] make you think about you and your experiences?
2. How much did you think about what it would be like if the events shown in the story [message] happened to you?
3. To what extent did you think the story [message] related to you personally?
4. To what extent were you reminded of your experiences while reading the story [message]?

Risk Judgment

1. How likely is it that you personally will experience the negative consequences of drinking between now and the end of the academic year? (1 = Very unlikely; 7 = Very Likely)
2. How likely is it that the average Cornell student will experience the negative consequences of drinking between now and the end of the academic year? (1 = Very unlikely; 7 = Very Likely)
3. Given my current alcohol consumption patterns, I would feel that I'm going to experience the negative consequences of drinking
4. Given my current alcohol consumption patterns, I would feel very vulnerable to experience the negative consequences of drinking

Biased Processing

On a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree," how much do you agree with the following statements?

1. The story [message] was boring
2. The story [message] was overstated
3. The story [message] was exaggerated
4. The story [message] was distorted
5. The story [message] was untrue
6. The story [message] was overblown
7. I thought the story [message] tried to manipulate my feelings
8. While I read the story [message], I felt it was not very truthful
9. While I read the story [message], I felt exploited

Attitude toward Binge Drinking

Drinking to get drunk (5 units of alcohol or more on one drinking occasion) would be…

1	2	3	4	5	6	7
1) Foolish						Wise
2) Harmful						Beneficial
3) Bad						Good

4) Undesirable	Desirable
5) Worthless	Valuable
6) Unpleasant	Pleasant
7) Unenjoyable	Enjoyable

Intentions to Reduce Alcohol-Consumption

1	2	3	4	5	6	7
Definitely will not do						Definitely will do

1. How likely is it that you will decrease the quantity of alcohol you consume in the next 2 weeks?
2. How likely is it that you will decrease the frequency of your alcohol consumption in the next 2 weeks?
3. How likely is it that you will decrease the peak amount of alcohol you consume in the next 2 weeks?
4. How likely is it that you will increase the quantity of alcohol you consume in the next 2 weeks? (*R*)
5. How likely is it that you will increase the frequency of your alcohol consumption in the next 2 weeks? (*R*)
6. How likely is it that you will increase the peak amount of alcohol you consume in the next 2 weeks? (*R*)
7. How likely is it that you will engage in at least one heavy-drinking episode in the next 2 weeks? (*R*)

APPENDIX 5B. STUDY 5.1 MESSAGE CONDITIONS

1. Narrative Condition (363 words)

I first began drinking when I was 15. I'd go out to a party with a couple of cans, usually two or three, and sit back, chat or dance the night away. During my first year at Cornell, I continued to go out more often; one, two or three cans turned into much more, sometimes even a bottle of alcohol a night without any non-alcohol drinks in between or any mixers. I sometimes joined a party on an empty stomach, even when I was running down or tired, so that I could be in a better mood. Drinking was the easiest way to manage my feelings. At parties, my friends and I enjoyed drinking games and took turns of liquor shots to reach a good buzz faster.

At the time, I never realized that drinking was really a problem. It's fun, and I believed that all of my friends and any other college students did the same to have fun. I didn't realize how this kind of misperception was influencing my own behavior.

I'd go out once or twice a weekend, and soon enough the amount of alcohol I was drinking was paying a price on my body. I sometimes passed out suddenly or violently vomited everywhere. I did get my fair share of hangovers. Most of my weekends, I had to do homework or study for a test, but I was unable to complete work to my full ability because of the worst hangover, and often had to spend the next day in bed.

Some days, my friends would remind me of things that I did throughout the night; things that I wouldn't normally do and couldn't even remember. I remember little of my last Friday night, except that I was drinking vodka shooters in a friend's room and having a good time. My friends say that we all walked out across the campus, searching for another party. But, somehow I woke up hours later, lying in a bed in the emergency room, smelling of vomit and alcohol.

It scared me. What if something happened that I had no control over simply because I was too drunk to notice or even care?

2. Informational Message Condition (316 words)

Binge drinking is a major health concern on college campuses. However, like other college students, you may overestimate the extent to which other students are engaging in high-risk drinking. Most students, including Cornellians, tend to drink moderately or not at all. Based on recent data, 77% of students report consuming, on average, four or fewer drinks when socializing in a setting with alcohol. You may also exaggerate the extent to which your peers "support" or find such behavior socially acceptable. Your misperceptions can influence your behavior. Thus, it is important to recognize your own risk factors and what is normative on Cornell campus.

Heavy drinking is not just social, but also, like other binge behavior, is in part related to difficulties calming and regulating yourself. It is normal for college students like you, learning to manage life on your own, to have some difficulty with self-soothing. Although it may be used as a way to manage your feelings, the key to a positive experience with alcohol is dosage. If you have a tendency to drink four or more drinks in a short period of time, you are a high-risk drinker. Below is a list of drinking habits that may put you at higher risk to experience negative consequences associated with binge drinking.

- Drinking on an empty stomach
- Drinking when you are run down or tired
- Playing drinking games
- Drinking shots and/or mixed drinks

Again, these are risk factors that may put you at higher risk than others. Alcohol poisoning can cause minor to deadly health problems such as making you suddenly lose consciousness or choking on your own vomit. Under the influence of alcohol, you lose control over your behavior, increasing the likelihood of doing embarrassing behaviors and becoming a victim of interpersonal violence. Risky drinking and repeated hangovers during semester also contribute to poor academic performance because you cannot complete work to your full ability.

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